

Research Note 85-10

ANALYSIS OF M16A1 BASIC RIFLE MARKSMANSHIP TRAINING

Jeffery L. Maxey and Joseph D. George
Mellonics Systems Development Division
Litton Systems, Inc.

H. C. Strasel, Contracting Officer's Representative

Submitted by

Seward Smith, Chief
ARI FIELD UNIT AT FORT BENNING, GEORGIA

and

Harold L. O'Neil, Jr., Director
TRAINING RESEARCH LABORATORY

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A review of the documentation for the programs revealed that sufficient information was available to support an in-depth analysis only for the Fort Benning and Fort Dix programs. However, it was found that sufficient information existed to identify broad similarities and differences among the four programs. For this reason Mellonics conducted two separate comparative analyses. The purpose of this report is to present the results of these analyses. The first is a molecular analysis of the Fort Benning and Fort Dix programs. The second is a molar analysis of the four BRM test programs.

Finally, as a by-product of the analyses, descriptions of the four BRM Test programs were developed. These descriptions indicate the instruction and evaluation activities, training objectives, and training practices characteristic of each of the BRM Test programs.



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FOREWORD

This report is provided by the Mellonics Systems Development Division of Litton Systems, Inc., to the Army Research Institute for the Behavioral and Social Sciences (ARI) under Contract Number DAA19-77-C-0011. This report is part of the final report of the total research support effort and will be incorporated in that report by reference.

Under the contract, a part of Mellonics' effort concerns support to the Training Effectiveness Analysis (TEA) research presently being conducted by the ARI for the United States Army Infantry School (USAIS). One portion of the TEA research involves the identification of improvements and the development of cost-effective alternatives for training M16A1 marksmanship and TOW and Dragon gunnery. A necessary prerequisite for accomplishing these tasks is the documentation and analysis of the current training for these weapons. This report presents the documentation and analysis for the M16A1 Rifle. The documentation and analysis for the TOW and Dragon Weapon Systems are published separately.

ABSTRACT

During the Spring of 1976 the BRM Test, conducted at Fort Jackson, South Carolina, evaluated four basic rifle marksmanship (BRM) training programs: the Army Subject Schedule (ASUBJSCD), Fort Benning, Fort Dix, and Fort Jackson programs. One product of the test was a substantial quantity of individual difference and rifle firing data. These data are currently being analyzed to assess the effects of selected individual differences on BRM acquisition and terminal performance.

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ANALYSIS OF M16A1 BASIC RIFLE MARKSMANSHIP TRAINING

INTRODUCTION

Recent Training and Doctrine Command (TRADOC) studies indicate that for the majority of Army systems (particularly weapon systems) training does not optimize total system effectiveness. These same studies show that existing practices tend to underutilize training resources. Because of these findings, TRADOC initiated the Training Effectiveness Analysis (TEA) effort. The objective of TEA is to produce improvements in training through analysis and redesign of the procedures and training resources used to implement current training programs. The analyses and redesign are to lead to more cost-effective alternatives for training.

In response to the TRADOC TEA objective, three alternative basic rifle marksmanship (BRM) training programs were developed, respectively, at Fort Benning, Fort Dix, and Fort Jackson. On 6 January 1976 TRADOC tasked the U. S. Army Infantry Center (USAIC) to test and evaluate these programs. The subsequent test evaluated these three programs against a modified version of the Army Subject Schedule (ASUBISCD) BRM program. The test was conducted during the Spring of 1976 at Fort Jackson, South Carolina.

One product of the test was a large quantity of individual difference and rifle firing data. The Army Research Institute (ARI) and the Mellonics Systems Development Division of Litton Systems, Inc., under contract to the ARI, are currently analyzing these data to assess the effects of selected individual difference variables on BRM acquisition and terminal performance. The training value of specific segments of the tested programs is also being assessed. During the preliminary phase of this analysis, a requirement was identified to define at a molecular level the similarities and differences existing among the four BRM Test programs. Once determined this information would be used to assist in the development of research hypotheses to be tested during the latter stages of the BRM Test data analysis.

Preliminary to the conduct of the molecular analysis, the available documentation for the test programs was obtained and reviewed. This review revealed that sufficient information existed to support a molecular analysis of only the Fort Benning and Fort Dix BRM Test programs. However, across the four test programs enough data were available for conducting a molar level analysis.

For this reason, analysis of the BRM Test programs was conducted in two parts. The first part, which constitutes the main body of this report, is a molecular analysis of the Fort Benning and Fort Dix BRM programs. By conducting this analysis, it was believed specific hypotheses relevant to the evaluation

of effectiveness for these programs could be identified.

The second part, which is presented in an appendix to the main body of the report, is a molar analysis of the four BRM Test programs. This analysis, while not as detailed as the analysis of the Fort Benning and Fort Dix programs, identifies broad similarities and differences existing among the four programs. This information is likely to be of some value in the interpretation of BRM Test data analyses involving simultaneous comparisons of the four test programs.

OBJECTIVES

The objectives of the research described in this report were:

- o To describe at a molecular level and compare the organization and sequencing of the Fort Benning and Fort Dix BRM Test program.
- o To identify specific hypotheses relative to the evaluation of program effectiveness for the Fort Benning and Fort Dix BRM Test programs.
- o To describe and compare at a molar level the ASUBJSCD (BRM Test version), Fort Benning, Fort Dix, and Fort Jackson BRM programs.

METHOD

The data base for the research consisted of two basic sources: the available descriptive literature for the four BRM programs and interviews with personnel involved in the conduct of the BRM Test. The available descriptive literature consisted of the programs of instruction (POIs) for the four programs and the lesson plans for the Fort Benning and Fort Dix programs. Lesson plans for the ASUBJSCD (BRM Test version) and the Fort Jackson programs were unavailable.

The molecular analysis of the Fort Benning and Fort Dix programs was based on the lesson plans for these programs. These plans were examined to derive the detailed organization of the programs. Specific instructional and practice requirements were identified and described. Finally, between-programs differences were identified. Based on this analysis, conclusions were derived concerning the probable consequences of the differences.

The molar analysis of the four BRM programs was based primarily on the POIs for these programs. This was supplemented by information obtained from interviews with BRM Test personnel.

From these data, descriptions of the programs were prepared. Next, training objectives were identified and listed. Additionally, program quality control procedures were identified and described. Finally, similarities and differences existing among the four BRM programs were determined from a comparative study of the above information.

REPORT ORGANIZATION

This document is divided into five parts:

- o Part one is an introduction. It describes the problem, objectives, methodology, and organization of the report.
- o Part two presents the results of a molecular analysis of the Fort Benning and Fort Dix BRM Test programs. The program organization, instruction and practices activities, and evaluation requirements for these programs are discussed and compared in this section of the report.
- o Part three presents a discussion of the results of the comparison of the Fort Benning and Fort Dix BRM Test programs. This discussion addresses the following areas: M16A1 mechanical functioning, M16A1 marksmanship (daylight firing, semi-automatic mode), automatic rifle marksmanship, and night marksmanship.
- o Part four is Appendix A and presents the molar comparison of the four BRM Test programs. This is presented in terms of the following: program composition, training emphasis, training content, practice requirements, training objectives, and training practices.
- o Part five is Appendix B and presents a descriptive summary for each of the four BRM Test programs in terms of the following: instruction and evaluation requirements, training objectives, and training practices.

RESULTS

PROGRAM ORGANIZATION

Training programs are designed to provide instruction in selected (but usually related) topics and opportunities to prac-

tice the application of this information. In military situations, instruction is generally presented by one or more of the following: lecture¹, conference², or demonstration³. Practice is usually conducted during practical exercise periods⁴. In addition to instruction and practice, training programs also provide for some form of evaluation. This evaluation is designed to assess proficiency with respect to the instruction and practice completed prior to the evaluation. The way in which instruction, practice, and evaluation activities are arranged and time is allocated for these activities defines the organization of a training program.

Tables 1 and 2 present the organization of the Fort Dix and Fort Benning BRM programs. An overview of these tables yields the following observations. First, for training activities, both programs provide for instruction and practice in the following areas:

- o M16A1 assembly, disassembly, and mechanical operation;
- o Marksmanship fundamentals (preparatory marksmanship);

1

A lecture is an oral explanation presented by a trainer to a group of trainees. Trainee participation is limited to asking questions about subject matter that is unclear to him and answering questions posed by the trainer.

2

A conference is a variation of the lecture in which trainee participation is encouraged and reinforced. The trainer initiates, guides, and stimulates discussion with and among trainees. Trainees are encouraged to present their ideas and opinions and to discuss these with the trainer, as well as other trainees.

3

A demonstration is a means of presenting or communicating information about a topic in which the trainer shows the trainees what actions they are supposed to perform and the appropriate way of performing the required actions.

4

A practical exercise period is a block of training time allocated for trainee practice. During this period, trainees attempt to apply information they have received during preceding instructional periods. As appropriate, performance errors are noted and corrected by the trainers.

Table 1

FORT DIA AND FORT BENNING PROGRAM ORGANIZATION: PERIODS AND TIME

Activity	Fort DIA		Fort Benning	
	Number of Periods Required for Conduct	Number of Minutes Allocated for Conduct	Number of Periods Required for Conduct	Number of Minutes Allocated for Conduct
Training				
Mechanical Training	1	150	1	150
Marksmanship Fundamentals	3	1100	3	450
Over-the-Hill Fire Marksmanship	3	450	3	710
Automatic Rifle Firing	1	150	1	150
Night Rifle Firing	1	150	1	150
Total Allocated	6	2055	6	1500
Evaluation				
Daylight Marksmanship	2	940	1	300
Night Marksmanship	1	---	1	140
Total Allocated	3	940	2	440
Program Total	10	2995	10	2095

Table 2

PHASES AND TIME ALLOCATED FOR INSTRUCTION, PRACTICE, AND EVALUATION ACTIVITIES

		Fort Benning		
	Minutes Allocated for Conduct		Minutes Allocated for Conduct	
Training				
Mechanical Training	1 L, C, D, PE 150	1 L ^d	15	
		2 L	5	
		3 L, D, PE	50	
		4 L, D, PE	40	
		5 L	5	
		6 L, D, PE	10	
		7 D, PE	10	
		8 D, PE	15	
		9 C, D, PE	25	
		10 C, D, PE	30	
Marksmanship Fundamentals	1 L, C, D, PE	195	1 L, D, PE	105
	2 L, C, D, PE	195	2 L, D, PE	50
	3 L, C, D, PE	235	3 L, PE	55
	4 L, PE	475	4 L, PE, L, D, PE	170
			5 L, PE	55
Pre-record Fire Marksmanship	1 L, C, D, PE	230	1 L, C, D, PE	230
	2 L, C, D, PE	235	2 L, C, PE	130
			3 L, D, PE	110
			4 L, PE	240
Automatic Rifle Training	1 L, C, D, PE	150	1 L, PE	180
Night Rifle Training	1 L, C, PE	150	-----	---
Total Allocation	9 -----	2055	20 -----	1525
Evaluation				
Daylight Marksmanship Test	1 RP ^e	470	1 RP	300
	2 RP	470	2 --	---
Night Marksmanship Test	1 --	---	1 RP	180
Total Allocated	4 -----	940	2 --	480
Program Total	13 -----	2995	22 --	2005

- ^a Conference
- ^b Demonstration
- ^c Practical Exercise
- ^d Lecture
- ^e Record Film

- o The daylight marksmanship evaluation requires two instructional periods for completion in the Fort Dix program and only one in the Fort Benning program. This is reflected in the completion time for this evaluation in each program: 940 minutes for the Fort Dix program and 300 minutes for the Fort Benning program.
- o A night marksmanship evaluation is only conducted in the Fort Benning program. The conduct of this evaluation requires 180 minutes.
- o Considered collectively, the training completed during the conduct of the Fort Benning program requires 26 percent less time (1523 minutes) than the training completed during the conduct of the Fort Dix program (2055 minutes). Further, the evaluation phase of the Fort Benning program requires about half as much time (480 minutes), as the Fort Dix evaluation phase (940 minutes), even though both day and night evaluations are conducted during the Fort Benning program.

Table 2 shows the detailed organization of training and evaluation events for each of the BRM programs.⁵ Inspection of this table yields the following additional observations. For the training activities common to both programs, more segmentation occurred for the Fort Benning program than for the Fort Dix program. That is, the Fort Benning program was characterized by more and shorter phases of instruction followed by practice than the Fort Dix program. The Fort Dix program, on the other hand, was characterized by fewer and larger phases of instruction followed by practice. This difference is particularly noticeable for the mechanical training activities. In this case, the Fort Benning program segments training into 10 phases, while according to the Fort Dix lesson plans, this part of training is not segmented. For program evaluation activities, Table 2 indicates that for each specific evaluation event there was no segmentation. That is, in both programs evaluations were not broken into a number of small discrete units.

5

In this table training activities are presented in terms of their component activities. These components are labeled phases. Each phase consists of a combination of instruction and practice activities that cover a particular instructional topic. In some cases, a number of phases are completed during a given period of instruction, while in other cases several periods of instruction, or parts of several periods, of instruction are included in a phase.

- o Pre-Record Fire marksmanship;
- o Automatic rifle firing.

Second, only the Fort Dix program provides for formal instruction and practice in night rifle firing. Third, with respect to evaluation activities, the tables show that both programs provide for the conduct of a daylight marksmanship evaluation (Record Fire). However, only the Fort Benning program conducts a formal night marksmanship evaluation.

Table 1 shows for each program the number of discrete instructional periods allocated for each type of training and evaluation activity. This table also shows the distribution of total program time across these activities. Inspection of this table yields the following additional observations:

- o Both programs conduct M16A1 mechanical training during a single instructional period and allocate about the same amount of time for this instruction.
- o Marksmanship fundamentals training is conducted in four periods in the Fort Dix program. In the Fort Benning program it is conducted in three periods. Significantly more time is allocated for this training in the Fort Dix program (1100 minutes) than in the Fort Benning program (435 minutes).
- o Pre-Record Fire marksmanship training is conducted in two periods in the Fort Dix program and in three periods in the Fort Benning program. Significantly more time is allocated for this training in the Fort Benning program (710 minutes) than in the Fort Dix program (465 minutes).
- o Training for automatic rifle firing is conducted during half an instructional period in the Fort Dix program. In the Fort Benning program it is conducted in one full period, dedicated solely to this instruction. In terms of total time, the Fort Benning program allocates 20 percent more time to this instruction (180 minutes) than the Fort Dix program (150 minutes).
- o The Fort Dix program allocates half an instructional period for training in night rifle firing. This training requires 150 minutes. As indicated above, the Fort Benning program does not include a formal training period for night rifle firing.

ORIENTATION AND MECHANICAL TRAINING INSTRUCTION AND PRACTICE REQUIREMENTS

Content Areas	BRM Program	
	Fort Dix	Fort Benning
Main Topic Areas		
M16A1 Disassembly	C ^a , D ^b , PE ^c	L ^d , D, PE
M16A1 Assembly	C, D, PE	L, D, PE
M16A1 Immediate Action	C, D, PE	C, D, PE
Supplemental Topic Areas		
History of Rifle Marksmanship	C	L
Orientation to BRM Program	C	L
Characteristics of M16A1	C	L
M16A1 Ammunition	C	L
Exterior Nomenclature - M16A1	C	L
Interior Nomenclature - M16A1	C	L
Clearing M16A1	C, D	L, D, PE
Functioning Cycle	C, D	L
Loading/Unloading Magazine	C, D	D, PE
Loading/Unloading M16A1	C, D	D, PE
M16A1 Stoppages	C	C, D
M16A1 Remedial Action	C, D	C, D
Preventive Maintenance	C, D	C, D, PE
Bearing Conservation	C	
Adjustment of Front and Rear Sights	C, D	
Procedure for Preliminary Zero	C, D	
M16A1 Magazine Disassembly		L, D, PE
M16A1 Magazine Assembly		L, D, PE

^a Conference

^b Demonstration

^c Practical Exercise

^d Lecture

In summarizing the analysis of program organization, five distinct between-programs differences emerge. First, the Fort Dix program tends to emphasize preparatory marksmanship training, while the Fort Benning program tends to emphasize pre-Record Fire marksmanship training. Second, the Fort Dix program is characterized by fewer and longer units of instruction and practice than the Fort Benning program. Third, the Fort Dix program conducts night firing training but does not provide for a formal night marksmanship evaluation; the Fort Benning program does not provide for the conduct of a formal period of night firing training but does evaluate night marksmanship proficiency. Fourth, while both programs evaluate daylight marksmanship proficiency, the Fort Benning evaluation is significantly shorter than Fort Dix's evaluation. Finally, in terms of the total time allocated for instruction and evaluation activities, the Fort Benning program is more efficient than the Fort Dix program.

INSTRUCTION AND PRACTICE REQUIREMENTS

Orientation and Mechanical Training. Table 3 lists the orientation and mechanical training content for the Fort Dix and Fort Benning programs. Table 3 also indicates the instruction and practice requirements for this training. The purpose of this training is to teach the disassembly and assembly of the M16A1 rifle and the conduct of the immediate action procedure for the M16A1 stoppages. Table 3 shows that both programs provide for instruction and practice in these topics. It also shows the programs provide training in other topics supplemental to M16A1 assembly, disassembly, and immediate action. The overlap between programs for this supplemental training is quite high. Of the 18 topics addressed by either program, 13 of the topics are addressed by both in some manner. Topics addressed only by the Fort Dix program are hearing conservation, adjustment of the front and rear sights, and the procedure for preliminary zero of the M16A1 rifle. Topics addressed only by the Fort Benning program are M16A1 magazine disassembly and M16A1 magazine assembly. The major difference between the two with respect to the supplemental training, however, is in terms of practice requirements. In the Fort Dix program none of the training for these topics include a practice component. For the Fort Benning program there are several instances in which this training has a practice component. Thus, the difference between the two BRM programs for this training phase exists primarily in terms of the practice associated with the supplemental instruction and secondarily with the specific supplemental topics covered.

Preparatory Marksmanship Training. The purpose of this phase is to teach the skills required to orient and fire the M16A1 rifle so that accurately placed target hits are high probability events. To accomplish this trainees must learn to perform the following tasks:

- o Align the front and rear sights;
- o Place the aiming point in the appropriate relation to the front and rear sights;
- o Hold the rifle steady during firing;
- o Use proper trigger control and follow-through;
- o Assume designed firing positions;
- o Adjust M16A1 sights.

Table 4 presents the instruction and practice requirements for the two BRM programs for teaching the above tasks. An overview of this table shows that both allocate training time for these tasks. However, the programs differ significantly with respect to the number of instances that instruction is initiated and practice is conducted for these tasks. In particular, the Fort Dix program provides many more instructional and practice opportunities for these preparatory marksmanship tasks than the Fort Benning program.

Specific differences between the programs for preparatory training are readily apparent from a close inspection of Table 4. First, both programs present instruction in sight alignment, aiming point placement and rifle steady hold, in the initial training period of the preparatory phase. However, the Fort Dix program initiates practice for these tasks via a series of dry-fire exercises, while the Fort Benning program initiates this practice via a live-fire exercise.

Second, the practice of sight alignment, aiming point placement, and rifle steady hold throughout preparatory training is supported by a variety of specific non-firing exercises (M15 sighting device exercise, the aiming bar exercise, and the target box exercise) in the Fort Dix program. Throughout the Fort Benning program, this practice is only supported by one specific non-firing exercise, the target box exercise.

Table 2

PREPARATORY MARKSMANSHIP INSTRUCTION AND PRACTICE REQUIREMENTS FOR THE PORT DIX AND FORT BENNING BEM PROGRAMS

Activity	Fort Dix				Fort Benning		
	1st Period	2nd Period	3rd Period	4th Period	1st Period	2nd Period	3rd Period
Instruction							
Sight Alignment	2	E(R)	E(R)	E(R)	E	E(R)	E(R)
Aiming Point Placement	E	E(R)	E(R)	E(R)	E	E(R)	
Steady Hold of the Rifle	E	E(R), D	E(R)	E(R)	E		
Follow Through					D		
Prone Supported Position	E, D	E(R), D	E(R)	E(R)	E, D	E, D	E(R)
Sight Adjustment	E(R)	E(R)	E(R)	E(R)			
Battlesight Zero Principles			E				
Kneeling Supported Position							
Kneeling Unsupported Position							
Standing Position							
Prone Unsupported Position							
Prone Position							
Snout Group Analysis	E, D	E(R)	E(R)	E(R)	E, D	E, D	
M-16 Sighting Device	E				E, D		
Aiming Bar Exercise	E						
Target Box Exercise	E, D		E(R)			E, D	
Range Facilities, Procedures and Safety Requirements							
M16A1 Immediate Action		E	D ^b	E(R)	E	E(R)	E(R)
M16A1 Remedial Action							
M16A1 Recoil		D	D ^b				
"Pop-No Kick" Malfunction							
Target Detection/Range Estimation	100	50	35	15		30	50
Minutes Allocated				270 minutes	60		145 minutes
Total Minutes							

(continued)

Table - (continued)

Activity	Fort Dix			Fort Benning		
	1st Period	2nd Period	3rd Period	1st Period	2nd Period	3rd Period
Practice						
Sight Alignment	PEC.d.e	PEC	PEC	PEC	PEC.f	PEC
Aiming Point Placement	PEC.d.e	PEC	PEC	PEC	PEC.f	PEC
Steady Hold of the Rifle	PEC	PEC.f	PEC	PEC	PEC.f	PEC
Prone Supported Position	PEC.f	PEC.f.8	PEC.f.8	PEC	PEC.f	PEC
Spot Group Analysis	PEC	PEC.8	PEC.8	PEC	PEC.f	PEC
Sight Adjustment	PEC	PEC	PEC	PEC	PEC.f	PEC
Battlesight Zero Firing	PEC	PEC	PEC	PEC	PEC.f	PEC
Kneeling Supported Position	PEC	PEC	PEC	PEC	PEC.f	PEC
Knelt Unsupported Position	PEC	PEC	PEC	PEC	PEC.f	PEC
Standing Position	PEC	PEC	PEC	PEC	PEC.f	PEC
Prone Unsupported Position	PEC	PEC	PEC	PEC	PEC.f	PEC
Portable Position	PEC	PEC	PEC	PEC	PEC.f	PEC
Target Detection	PEC	PEC	PEC	PEC	PEC.f	PEC
Range Estimation	PEC	PEC	PEC	PEC	PEC.f	PEC
Minutes Allocated	95	145	200	45	75	105
Total Minutes				165 minutes		285 minutes

In this table the following abbreviations are employed to describe instruction and practice: E for an explanation, D for a demonstration, and PE for a practical exercise.

"Pop-N-Kick" demonstration conducted.

Trainee completes the Target Box aiming exercise.

Trainee completes the M15 Sighting Device aiming exercise.

Trainee completes the Aiming Bar aiming exercise.

Trainee practices assumption of a firing position.

Trainee fires 18 rounds from the prone supported position at 25-meter targets.

Trainee fires 12 rounds from the prone supported position at 25-meter targets to obtain a battlesight zero.

Trainee fires 9 rounds from the foxhole position at 25-meter targets.

Trainee fires 18 rounds from the foxhole position at 25-meter target to obtain a battlesight zero.

Trainee fires 3 rounds at 25-meter targets.

Third, live-fire practice in the Fort Dix program is conducted primarily from the prone supported position for the Fort Dix program. In the Fort Benning program live-fire practice is primarily conducted from the foxhole position.

Fourth, the Fort Benning program specifically indicates that the concept and conduct of "Followthrough" will be addressed during training. The Fort Dix program does not explicitly address this concept. It could not be determined if this was due to an oversight on the part of the developers of the Fort Dix program or a deliberate omission.

Fifth, in the Fort Dix program battlesight zero firing is initiated during the first live-fire session, while in the Fort Benning program this firing is not initiated until the last live-fire session. The practical consequence of this difference is that trainees completing the Fort Dix program have the opportunity to obtain a battlesight zero as early as they are capable of doing so. In the Fort Benning program, trainees must wait until the last preparatory live-fire session is initiated before they are given an opportunity to achieve a battlesight zero.

Sixth, the Fort Dix program implements more supplemental training activities during the preparatory training phase than the Fort Benning program. The supplemental activities included in the Fort Dix program but not included in the Fort Benning program in this phase are the M16A1 recoil demonstration, the "pop-no kick" malfunction demonstration, and target detection/range estimation training.

Seventh, both programs provide supplemental training with respect to firing positions. By the end of this training phase all of the basic firing positions (prone unsupported, prone supported, kneeling unsupported, kneeling supported, foxhole, and standing positions) have been addressed in the Fort Dix program. In the Fort Benning program, however, all but the standing position have been addressed by the termination of this phase.

Eighth, while both programs provide for reviews of previously covered material during each phase of preparatory marksmanship training, more review instances occur during the Fort Dix program than in the Fort Benning program.

In summarizing the differences between the preparatory training conducted during the two BRM programs, the Fort Dix program can be characterized as providing more instructional and varied types of practice opportunities for preparatory marksmanship skills than the Fort Benning program. Instructional reviews of previously covered material are also more frequent in the Fort Dix program. Additionally, the Fort Dix program provides for conducting more supplemental training activities during this phase than the Fort Benning program. These findings are reflected in the time allocated for the conduct of this training by each program. The Fort Dix program allocates 200 minutes for instruction and 900 minutes for practice, while the Fort Benning program allocates 140 minutes for instruction and 295 minutes for practice.

Pre-Record Fire Marksmanship Training. The purpose of this training is to teach trainees the application of rifle marksmanship fundamentals for engaging well illuminated, briefly appearing (5 to 20 seconds) targets (both single and multiple) located at short (50 to 100 meters), medium (150 to 200 meters), and long (250 to 300 meters) target ranges. Ideally, this training is designed to provide the trainee with an opportunity to extend the application of rifle marksmanship fundamentals to more complex, more demanding conditions than those encountered during the preparatory training phase. For this reason there is little emphasis on the acquisition of new skills. Instead, the emphasis is on the extension of current marksmanship skills to a wider variety of target engagement conditions.

Table 5 lists the instruction and practice requirements for this phase of both BRM programs. Inspection of this table shows a number of differences between the programs. First, there is a basic difference between the programs for this training in terms of the amount of practice in field target engagement⁶ that is provided. The Fort Benning program places a significant emphasis on field target engagement practice, while the Fort Dix program places only a small amount of emphasis on this practice. This is reflected in two ways: by time allocated for field target engagement practice and the number of field target engagements characteristic of a program.

The Fort Benning program allocates significantly more time (500 minutes) for target engagement practice than the Fort Dix program (170 minutes). Moreover, the Fort Benning program provides for the conduct of 82 engagements involving 112 targets, while the Fort Dix program

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Field target engagements involve firing on targets that have properties similar to those found in combat. In such engagements, the trainees must deal with single and multiple targets, which appear for varying amounts of time at various ranges.

Table 1

PSF-RECORD FIRE INSTRUCTION AND PRACTICE REQUIREMENTS FOR THE FORT DIV AND FORT BENNING DEM PROGRAMS^a

Activity	Fort Dix		Fort Benning	
	1st Phase	2nd Phase	1st Phase	2nd Phase
Instruction				
Sight Alignment	E(R)			
Aiming Point Placement	E(R)			
Steady Hold of the Rifle	E(R)			
Center-to-Target Method of Engagement		E,D		
Firing on Multiple Targets				
Prone Unsupported Position	E(R),D			
Kneeling Supported Position	E(R),D			
Kneeling Unsupported Position	E(R),D			
Forehole Position	E(R),D			
Standing Position				
Range Facilities, Procedures, Safety	E(R)			
Target Detection				
Range Estimation				
"Crack and Thump" Range Determination				
Minutes Allocated	30	65	30	20
Total Minutes		115 minutes		100 minutes
Practice				
Sight Alignment	PE	PEC,d,e	PE	PE
Aiming Point Placement	PE	PEC,d,e	PE	PE
Steady Hold of Rifle	PE	PEC,d,e	PE	PE
Prone Unsupported Position	PE	PEC,d,e	PE	PE
Prone Supported Position	PE	PEC	PE	PE
Kneeling Supported Position		(continued)		

Table 5 (continued)

Activity	Fort Dix		Fort Benning	
	PE ^a PE ^b	PE ^c PE ^d	PE ^e PE ^f	PE ^g PE ^h
Kneeling Unsupported Position				
Prone Position				
Standing Position				
Target Detection				
Range Estimation				
"Crack and Thump" Range Determination	180	180		
Minutes Allowed	180	180		
Total Minutes	180	180		

a In this table the following abbreviations are employed to describe instruction and practice: E for an explanation, E(R) for a review of a previous explanation, D for a demonstration, and PE for a practical exercise.

b Known distance firing (12 rounds fired from the prone unsupported position at 200-yard target) conducted.

c Trainee fires 9 rounds at briefly appearing targets (single and multiple) located at ranges between 75 and 300 meters.

d Trainee fires 9 rounds at briefly appearing targets (multiple) located at ranges between 75 and 300 meters.

e Trainee fires 9 rounds at briefly appearing targets (single) located at ranges between 75 and 175 meters.

f Trainee fires 12 rounds at briefly appearing targets (single) located at ranges between 75 and 300 meters.

g Trainee fires 6 rounds at briefly appearing targets (single) located at ranges between 75 and 300 meters.

h Known distance firing (16 rounds fired from the supported position at 250-meter target) conducted.

i Trainee fires 16 rounds at briefly appearing targets (single and multiple) located at ranges between 75 and 300 meters.

j Trainee fires 5 rounds at briefly appearing targets (single and multiple) located at ranges between 75 and 300 meters.

k Trainee fires 9 rounds at briefly appearing targets (multiple) located at ranges between 75 and 300 meters.

l Trainee fires 9 rounds at briefly appearing targets (multiple) located at ranges between 75 and 300 meters.

m Trainee fires 20 rounds at single and multiple targets located at ranges between 50 and 300 meters.

n Target detection and range estimation training is allocated 110 minutes.

provides for the conduct of only 2 engagements involving 16 targets. Table 1 presents, for both programs, a summary of these target engagements.

Second, while both programs allocate about equal amounts of time for instruction (115 minutes for the Fort Dix program and 100 minutes for the Fort Benning program) the emphasis of this instruction is quite different. The Fort Dix program's instruction is primarily devoted to the review of previously covered material. The Fort Benning program's instruction is primarily devoted to covering new material, such as firing on multiple targets⁷, target detection and range estimation.

Third, both programs conduct known distance firing for battlesight zero verification. A full training period is allocated for this firing in the Fort Dix program, but only a portion of a period is allocated in the Fort Benning program. Further, the Fort Benning program conducts this firing using 250-meter targets, while the Fort Dix program uses 200-yard targets. In this regard, the Fort Benning known distance firing provides for a more valid battlesight zero confirmation since 250-meter targets are the appropriate targets to use for confirming 25-meter battlesight zero, not 200-yard targets. Finally, in the Fort Benning program this firing is conducted from the prone supported position, while in the Fort Dix program, it is conducted from the prone unsupported position. Because the prone supported position is relatively more stable than the prone unsupported position, trainees in the Fort Benning program are likely to have a less difficult time achieving target hits than trainees in the Fort Dix program.

Fourth, fewer firing positions are employed during pre-Record Fire practice by the Fort Dix program than by the Fort Benning program. In particular, the Fort Dix program employs only the kneeling unsupported, the kneeling supported, and the standing firing positions. In contrast, the Fort Benning program employs the foxhole, the prone unsupported, and the prone supported positions in addition to the kneeling unsupported and kneeling supported positions. The Fort Benning program, however, does not employ the standing position for these firings.

Fifth, during pre-Record Fire practice trainees in the Fort

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The Fort Dix program does not indicate that this topic is addressed during instruction. It is not clear if this was an accidental or a deliberate omission in the lesson plans for this program.

Table 6

NUMBER OF TARGET ENGAGEMENTS COMPLETED DURING PRE-RECORD
FIRE TRAINING FOR THE FORT DIX AND FORT BENNING
BRM PROGRAMS

Type of Engagement	Fort Dix	Fort Benning
Single Targets		
Firing Positions	Target Range	Target Range
	S, M, L	S, M, L
Foxhole	0 0 0	8 9 7
Prone Unsupported	0 0 0	8 0 0
Kneeling Unsupported	0 1 2	3 2 2
Kneeling Supported	1 1 0	2 2 2
Standing	3 4 0	0 0 0
Total Engagements	8 6 2	21 21 19
Multiple Targets	Target Range	Target Range
	S, M, L	S, M, L
Firing Positions	S, M, L	S, M, L
Foxhole	0 0 2	3 2 1
Prone Unsupported	0 0 0	2 1 2
Prone Supported	0 0 0	0 0 2
Kneeling Unsupported	1 0 0	2 0 0
Kneeling Supported	1 1 1	0 0 0
Total Engagements	2 2 3	7 4 7

^a Short Range, i.e., 50, 75, 100 meters

^b Medium Range, i.e., 150, 175, 200 meters

^c Long Range, i.e., 250, 300 meters

... as well as short, medium, and long range single targets. While in the Fort Dix program trainees engage mainly short and medium range single targets. For multiple target engagements, trainees in the Fort Benning program engage only short-medium, short-long, and medium-long target combinations. In the Fort Dix program they engage mainly short-medium, short-long, and short-medium-long target combinations.

... as indicated above, the Fort Benning program institutes target detection and range estimation training during this training phase. This is in contrast to the Fort Dix program, in which this training is instituted during preparatory training.

In summarizing the basic difference between the Fort Dix and Fort Benning program for this training phase, it is apparent that the Fort Dix program was not designed to provide trainees with a significant amount of experience in engaging combat like, field targets. The Fort Benning program, on the other hand, was designed to provide this experience. In so doing, it emphasizes the extension of basic rifle marksmanship fundamentals to more demanding, combat like target engagements and thus is likely to better prepare the trainees for combat.

Automatic Rifle Firing Training Phase. The purpose of this training phase is to teach the use of the automatic mode of the M16A1 rifle. In this phase trainees must learn to perform the following tasks:

- o Aim the rifle while firing in the automatic mode;
- o Hold the rifle steady while firing in the automatic mode;
- o Assume the bipod supported prone position;
- o Change the magazine rapidly.

In discussing program organization, it was noted that training in automatic rifle fire is conducted in half an instructional period during the Fort Dix program, while it is conducted in a full instructional period during the Fort Benning program. Further, for the Fort Benning program some preliminary automatic rifle fire instruction is conducted concurrently with the daylight marksmanship evaluation. The lesson plan for the Fort Benning program did not clearly indicate how much time was actually devoted to this concurrent instruction.

Table 7 shows for both programs the instruction and practice allocated for automatic fire training. This table shows that both programs provide instruction for the automatic firing tasks listed above. Further, the Fort Dix program also presents instruction in using the extended target engagement method during automatic firing.

In program organization for practicing aiming, steady hold, the bipod supported prone position, rapid magazine changing, and firing the rifle

of the automatic rifle. However, the nature of this practice differs for the two programs. In the Fort Dix program, 36 rounds are fired against 50-meter, E-type silhouette targets which appear for brief periods of time. When hit, these fall down. In the Fort Benning program, 45 rounds are fired against standard 25-meter automatic rifle targets. An example of this target is shown in Figure 1. These targets do not fall when hit. Because of these target engagement differences, it appears that the rationale underlying this training phase is different for the two programs. In particular, the purpose of the Fort Dix practice appears to be to teach the trainee to engage targets under conditions that stress the attainment but not the accuracy of target hits. On the other hand, the Fort Benning practice requirements appear to emphasize not only the attainment of target hits, but also their accurate placement.

Finally, as shown in Table 7, the Fort Benning program includes more practice involving firing position assumption than the Fort Dix program. Both programs, however, provide for the same amount of aiming practice.

In summarizing the differences between the Fort Dix and Fort Benning BRM programs for automatic rifle training, those that emerge are primarily with respect to the manner in which the instruction is implemented and the nature of the practice for this training. In particular, the Fort Dix program conducts all instruction for this training in a single session, while the Fort Benning program spreads the instruction over two sessions. Practice in the Fort Dix program appears to be designed to provide trainees with the opportunity to engage briefly appearing targets and emphasizes only the attainment of hits. In the Fort Benning program, it appears to be designed to allow the trainees to practice automatic rifle firing fundamentals in order to gain proficiency in the accurate placement of target hits.

Night Rifle Firing Training. As discussed above, the Fort Dix program allocates time for a formal night rifle firing training session. The Fort Benning program, however, does not. Instead, instruction in this topic occurs within the Fort Benning program during the daylight Record Fire phase as a concurrent topic and just prior to the conduct of the night marksmanship evaluation. The instructional areas covered by both programs are for the most part quite similar (See Table 8). Common instructional areas are:

- a. Dark adaptation;
- a. Off-center vision;
- a. Scanning technique;
- a. Night fire-pointing technique;
- a. Range and safety procedures for night firing.

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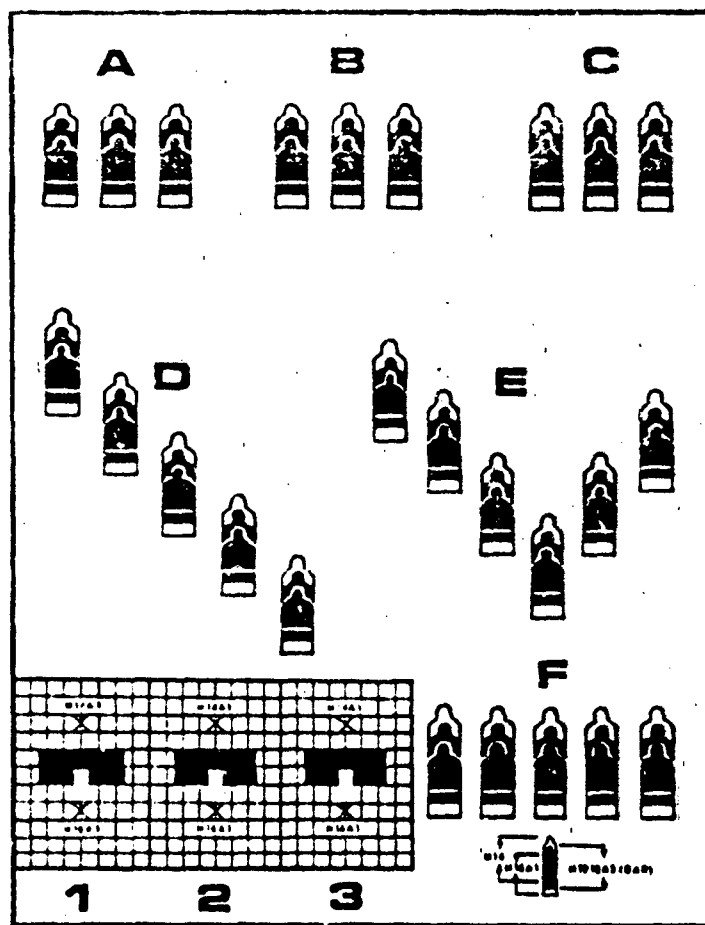


Figure 1. Standard 25-Meter Automatic Rifle Target

Table 8

NIGHT RIFLE FIRING INSTRUCTION AND PRACTICE REQUIREMENTS FOR THE FORT DIX AND FORT
BENNING BSM PROGRAMS^a

Activity	Fort Dix	Fort Benning
Instruction		
Night Vision - Dark Adaptation	E	E
Night Vision - Off Center Vision	E	E
Night Vision - Scanning Technique	E	E
Night Fire Pointing Technique	E	E
Low Light Level Sight System		E
Bipod-Supported Prone Position	*(R)	
Range and Safety Procedures	E(R)	F
Minutes Allocated	35	b
Practice		
Bipod Supported Prone Position	PEC	
Automatic Firing	PEC	
Minutes Allocated	115	

^a In this table the following abbreviations are employed to describe instruction and practice:
E for an explanation, E(R) for a review of a previous explanation, and PE for a practical exercise.

^b This time could not be determined from the lesson plans.

^c Trainees fire 30 rounds (2-3 round bursts) at 50-meter targets at night.

In the Fort Benning program, the above areas are supplemented with a review of the tripod-supported prone firing position. In contrast, the Fort Benning program supplements the above instructional areas with an explanation of the low light level night system (which is used during the Fort Benning night rifle firing evaluation).

Finally, for the Fort Dix program all of the night rifle firing instruction is conducted just prior to dusk. For the Fort Benning program, only the instruction that precedes the night marksmanship evaluation occurs just before dusk. By the time this instruction is completed in both programs, night has fallen and the ambient illumination has reached a level appropriate for conducting night rifle firing.

In addition to night firing instruction, the Fort Dix program provides for a night firing practice session. This session is conducted after dusk. This practice consists of firing 30 rounds in 2-3 round bursts (automatic mode) at 50-meter, E-type silhouette targets. These targets appear for 20 seconds and fall when hit.

Thus, the basic difference between the two BRM programs with respect to night firing training is that the Fort Dix program provides for a formal instruction and practice session for this topic area, while the Fort Benning program only provides for some instruction but not in a separate, formal instructional session.

EVALUATION REQUIREMENTS

The purpose of training is to provide the circumstances for acquiring the knowledges and skills necessary for the successful performance of a given task or set of tasks under a stated set of conditions. The purpose of evaluation is to assess the degree to which training is successful. Generally, this is accomplished by requiring the trainee to complete a proficiency test designed to sample the knowledges and skills acquired through training. In the case of BRM training, marksmanship proficiency is tested by the completion of the Record Fire test. This test consists of a series of firing trials. Each trial is defined in terms of the position from which firing is conducted, the number of targets available during the trial, the distance of the targets from the observer, and the amount of time available for target engagement. Because BRM training frequently has both day and night components, the Record Fire test may have both day and night components.

In BRM training, the Record Fire evaluation serves an additional purpose. It provides the basis for determining the level at which the trainee has mastered the knowledge and skills required for effective use of the M16A1 rifle. Currently, trainees are classified with respect to their post-training capabilities (as defined by the total number of hits achieved during Record Firing) into one of the following categories: unqualified, marksman, sharpshooter, and expert. The total score required to achieve a given post-training qualification classification depends on the particular BRM program a trainee completes.

The purpose of this section of the report is to discuss and compare the evaluation procedures for the Fort Dix and Fort Benning BRM programs and, as well, the qualification standards for both.

Record Fire Evaluation--An Overview. Table 9 presents a summary of the evaluation requirements for both the Fort Benning and Fort Dix BRM programs. Additionally, this table lists the qualification standards for the two programs. Inspection of Table 9 shows that the Fort Dix program only has a daylight component to its Record Fire evaluation, while the Fort Benning program has both day and night components. However, while the Fort Dix program has no formal night Record Fire, there is a requirement that at least four hits must be achieved during the practice phase of this program's night fire training in order to successfully complete the program. Thus, to successfully complete either program, there are day and night evaluation firing requirements that must be met.

Daylight Record Fire Evaluation. In the Fort Dix program the daylight marksmanship evaluation is conducted in two sessions, while in the Fort Benning program, it is conducted in a single session. The first evaluation in the Fort Dix program and the single evaluation period of the Fort Benning program are very similar in that trainees in both programs (1) fire 40 rounds, (2) engage both single and multiple targets, and (3) conduct target engagements from two designated positions, the foxhole and the prone unsupported firing positions.

The second evaluation session of the Fort Dix program (which the Fort Benning program does not have) is similar to the first evaluation session of this program in that trainees fire 40 rounds and engage both single and multiple targets. These sessions, however, differ in one major respect. In the first session all target firings are conducted from designated positions, while in the second session only 10 firings are conducted from designated positions. Discussion with personnel knowledgeable about the conduct of the BRM Test, revealed that trainees typically assumed the kneeling unsupported and prone unsupported positions, when position was optional, as follows: for 50-meter targets the kneeling unsupported position was usually chosen, while for targets located at ranges greater than 50 meters, the prone unsupported position was usually chosen. The data presentation and discussion that follows are based on the assumption that the optional positions chosen during completion of the second daylight marksmanship evaluation session of the Fort Dix program were limited to the kneeling unsupported and prone unsupported positions as described above.

Table 9 summarizes the basic differences between the Fort Dix and Fort Benning daylight Record Fire evaluations.

First, as discussed above, the Fort Dix evaluation is conducted during two successive periods, while the Fort Benning evaluation is conducted during a single period. Second, only the Fort Dix program provides for warm-up firings (10 per period) prior to the conduct of each daylight

Table 9

FORT DIX AND FORT BENNING BFM PROGRAM EVALUATION CHARACTERISTICS

Characteristic	Fort Dix	Fort Benning
Daylight Record Firing		
Total Time for Conduct (minutes)	940	300
Number of Periods for Conduct	2	1
Number of Practice Firings	20	0
Number of Firings for Record	80	40
Percent of Firings Conducted by Firing Position:		
Prone Unsupported	50	50
Prone Supported	38	50
Kneeling Unsupported	12	0
Percent of Firings Conducted by Target Type:		
Single	38	40
Multiple	62	60
Percent of Firings Conducted by Target Range:		
Short	37	30
Medium	33	33
Long	30	37
Qualification Standard:		
By Hits		16 (or less)
Unqualified	42 (or less)	17-23
Marksmen	43-52	24-27
Sharpshooter	53-59	28-40
Expert	60-80	
By Percentages		40 (or less)
Unqualified	53 (or less)	40-58
Marksmen	54-65	59-68
Sharpshooter	66-74	70-100
Expert	75-100	

(continued)

Table 9 (concluded)

Characteristic	Fort Dix	Fort Belvoir
Night Rifle Firing		
Total Time for Conduct (minutes)		180
Number of Periods for Conduct		1
Number of Practice Firings	30 ^a	9
Number of Firings for Record		80
Qualification Standard:		
By Hits		
100%	3 (or less)	19 (or less)
90%	4 (or more)	20 (or less)
By Percentages		
100%	10 (or less)	24 (or less)
90%	13 (or more)	25 (or less)

^a These firings are conducted during the practical exercise session in the training phase of Night Rifle Firing in the Fort Dix program.

Record Fire evaluation. Third, the Fort Dix evaluation involves twice as many firings (80 rounds) as the Fort Benning evaluation (40 rounds). Fourth, firings during the Fort Dix evaluation are conducted from three positions (prone unsupported, foxhole, and kneeling unsupported), while in the Fort Benning program they are conducted from only two positions (prone unsupported and foxhole).

Fifth, while trainees in both programs engage medium range targets in the same proportions, the trainees in the Fort Dix program engage proportionally more short range targets than the trainees in the Fort Benning program. In contrast, trainees in the Fort Dix program engage proportionally more long range targets than trainees in the Fort Benning program. Since long range targets are generally more difficult to hit, the Fort Benning evaluation is likely to be more difficult to complete than the Fort Dix evaluation.

A sixth between-programs difference with respect to daylight Record Firing is evident from an inspection of Tables 10 and 11. These tables present a detailed comparison of the pre-Record Fire and Record Fire requirements for single and multiple target engagements. For both types of engagements, significantly more overlap exists between specific combinations of firing positions and target range for the Fort Benning program than for the Fort Dix program. This occurs because more of the Fort Benning Record Fire target engagements are conducted from the same firing positions as employed during pre-Record Fire training. These results indicate that the Fort Benning daylight Record Fire evaluation is likely to constitute a more valid test of the firing proficiency developed during pre-Record Fire training than the Fort Dix Record Fire evaluation. That is, the Fort Dix evaluation includes task conditions not emphasized during training.

Night Record Fire Evaluation. As discussed above, only the Fort Benning program has a formal night Record Fire component. This evaluation is conducted as follows:

- o Trainees fire 3 rounds for practice, followed by 10 rounds for record at 25-meter, E-type silhouette targets using the semiautomatic mode of fire.
- o Trainees fire 3 rounds for practice, followed by 30 rounds for record at 25-meter, E-type silhouette targets using the automatic mode of fire.
- o Trainees fire 10 rounds for record at 50-meter, E-type silhouette targets using the semiautomatic mode of fire.
- o Trainees fire 3 rounds for practice and 30 rounds for record at 50-meter, E-type silhouette targets using the automatic mode of fire.

Table 11

NUMBER OF TARGET ENGAGEMENTS INVOLVING BRIEFLY APPEARING SINGLE
 DUCKS IN THE TARGET AREA DURING FIRE TRAINING AND
 RECORDS OF ENGAGEMENTS

Firing Position	Target Range	Fort Dix		Fort Benning	
		Training	Record Firing	Training	Record Firing
Foxhole	H ^a	0	1	8	3
	H ^b	0	6	9	4
	L ^c	0	5	7	5
Prone Unsupported	S	0	4	8	1
	M	0	4	8	1
	L	0	6	8	2
Kneeling Unsupported	S	2	2	3	0
	M	1	0	2	0
	L	2	0	2	0
Kneeling Supported	S	1	0	2	0
	M	1	0	2	0
	L	0	0	2	0
Standing	S	5	0	0	0
	M	4	0	0	0
	L	0	0	0	0
Total Engagements		16	30	61	16

^a Short Range Targets, i.e., 50, 75, 100 meter targets
^b Medium Range Targets, i.e., 150, 175, 200 meter targets
^c Long Range Targets, i.e., 250, 300 meter targets

Table II

NUMBER OF TARGET ENGAGEMENTS INVOLVING PRIORS APPEARING MULTIPLE
 TIMES IN INDIVIDUALS' PREVIOUS FINE TRAINING AND
 DAYLIGHT RECORD DATA

Firing Position	Target Range	Night Training		Day Training	
		Training	Record Firing	Training	Record Firing
Foxhole	S ^a , M ^b	0	2	3	2
	S ^c	0	2	2	1
	S, M, L	2	2	1	0
	M, L	1	1	3	0
	L, L	0	0	1	1
Ground Unsupported	S, M	0	4	2	3
	S, L	0	2	1	2
	S, M, L	0	1	1	0
	M	0	1	0	0
	M, L	0	3	2	3
	L, L	0	1	0	0
Ground Supported	M, L	0	0	2	0
	S	0	4	0	0
Facing Unsupported	S, M	1	0	2	0
	S, L	1	0	1	0
Facing Supported	S, M	1	0	0	0
	S, L	1	0	0	0
	S, M, L	1	0	0	0
Total Engagements		8	23	21	12

^a Short Range Targets, i.e. 50, 75, 100 meter targets

^b Medium Range Targets, i.e. 150, 175, 200 meter targets

^c Long Range Targets, i.e. 250, 300 meter targets

Additionally, for the firings conducted using the semiautomatic mode, the low light level sighting system is employed. The lesson plan for this evaluation was not completely clear about the firing positions employed during semiautomatic and automatic firings. However, it is likely that semiautomatic firing was conducted from the prone unsupported position, while automatic firing was conducted from the bipod supported prone position.

Qualification Standards. Table 9 lists the qualification standards for the two BKM programs. For daylight record firing, the Fort Dix standards were higher than for the Fort Benning program in terms of the percentage of total hits required. This was true not only for achieving minimal qualification, but also for achieving a given level of qualification (marksman, sharpshooter, and expert).

For night firing, however, the qualification standard for the Fort Dix program was less stringent than for the Fort Benning program. During the practice phase of night fire training in the Fort Dix program, a total of 30 firings were conducted. As shown in Table 9, only 4 or more of these 30 firings (13 percent) must be hits for a trainee to obtain a "Go." For the Fort Benning program, 20 or more of the 80 rounds fired at night (25 percent) must be hits for a trainee to obtain a "Go."

Summary of Evaluation Requirements. In summary, the Fort Dix and Fort Benning post-training evaluations differ in several basic ways:

- o The Fort Dix daylight evaluation requires over three times as much time and twice as many rounds for completion as the Fort Benning daylight evaluation.
- o The Fort Benning daylight marksmanship evaluation is likely to be more difficult to complete than the Fort Dix evaluation, since proportionally more long range targets are engaged during the completion of the Fort Dix evaluation than are engaged during the completion of the Fort Benning evaluation.
- o The Fort Benning daylight marksmanship evaluation is likely to constitute a more valid test of the firing proficiency developed during pre-Record Fire training than the Fort Dix evaluation.
- o Unlike the Fort Benning program, the Fort Dix program does not have a formal night record fire component.
- o The daylight qualification standards for the two programs, as well as the night qualification standards, are very dissimilar. In particular, the daylight standards for the Fort Dix program are higher than the Fort Benning program, while the night "Go"

standard for the Fort Dix program (13 percent or more hits) is significantly less than the standard for the Fort Benning program (25 percent or more hits).

DISCUSSION

The purpose of the detailed analysis of the Fort Dix and Fort Benning programs was to identify specific, between the programs, differences likely to be relevant to the evaluation of program effectiveness. In conducting the analysis, three aspects of the programs were studied: program organization, specific instruction and practice requirements, and specific evaluation requirements. The purpose of this section of the report is to discuss the observed program with respect to these characteristics. In discussing these findings, the emphasis will be on the likely consequences of the differences for the evaluation of program effectiveness.

M16A1 MECHANICAL FUNCTIONING

The purpose of M16A1 mechanical training is to teach the mechanical functioning of the M16A1 rifle in sufficient detail so that at least three basic tasks can be performed following the completion of this training:

- o M16A1 disassembly;
- o M16A1 assembly;
- o Application of the M16A1 immediate action procedure.

The effectiveness of this training can be measured in at least two ways:

- o First, by the number of trainees who are jointly capable of the error free disassembly of the M16A1 rifle, the error free assembly of the M16A1 rifle, and the error free application of the immediate action procedure for the M16A1 rifle.
- o Second, by the efficiency with which the M16A1 disassembly, assembly, and immediate action procedure tasks are performed by those trainees who complete them without making errors.

The analysis of the Fort Dix and Fort Benning BRM programs shows that both programs allocate about equal amounts of time to M16A1 mechanical training. It also shows that both programs provide for instruction and practice for the M16A1 disassembly, assembly, and immediate action procedure tasks. The analysis additionally indicates that

Both programs provide similar training for content areas supplemental, but supportive of, the disassembly, assembly, and immediate action procedure tasks. Therefore, it is unlikely that the effectiveness of the two programs for M16 assembly, disassembly, and immediate action procedures will be significantly different. However, the organization of this training for the two programs differs significantly. The Fort Benning program segments mechanical training into 10 components, while the Fort Dix program does not segment training at all. As a consequence, differences in effectiveness for the two programs were found to exist. It is possible that these differences might, in part, be due to the above described differences in program organization for this training phase.

M16A1 MARKSMANSHIP - DAYLIGHT FIRING, SEMIAUTOMATIC MODE

The purpose of the preparatory and pre-Record Fire marksmanship training phases is to provide the conditions for the acquisition of the skills required to fire the M16A1 rifle in the semiautomatic mode so that accurately placed target hits are high probability events. Both of these training phases are conducted under daylight illumination conditions in order to maximize target visibility. The preparatory phase is designed to provide the conditions for acquiring the basic skills required for accurately firing the M16A1 rifle. The pre-Record Fire phase, on the other hand, is designed to provide the conditions for extending the basic marksmanship skills (acquired in the preparatory phase) to a wider variety of engagement conditions than existed during preparatory training.

There are several ways in which the effectiveness of preparatory and pre-Record Fire may be assessed:

- o First, by the number of trainees who achieve battle-sight zero during preparatory training.
- o Second, by the number of hits achieved during the completion of a known distance proficiency test.
- o Third, by the number of hits achieved during daylight marksmanship proficiency testing.

The analysis of the Fort Dix and Fort Benning BRM programs showed that the Fort Dix program provides more instruction and practice opportunities for preparatory marksmanship skills than the Fort Benning program. Additionally, the analysis showed that the Fort Benning program is designed to provide trainees with significantly more opportunities to engage targets that have properties similar to targets appearing in combat than the Fort Dix program. The analysis also showed that the Fort Benning Record Fire evaluation is likely to provide a more valid measure of the field target engagement capability developed during pre-Record Fire training, than the Fort Dix Record Fire evaluation. In

comparing the effectiveness of the two programs with respect to preparatory and pre-Record Fire instruction the following hypotheses are suggested:

- o If extensive instruction and practice are prerequisites to the acquisition of basic rifle marksmanship skills, it may be expected that the number of trainees who achieve a battlesight zero by the completion of preparatory marksmanship training will be significantly greater for the Fort Dix than the Fort Benning program.
- o If the achievement of a battlesight zero is a necessary prerequisite for obtaining target hits during known distance firing, the average percentage of known distance hits achieved by trainees completing the Fort Dix program is likely to be significantly higher than the average percentage of hits achieved by trainees completing the Fort Benning program.
- o If improvement in field target engagement proficiency is associated with the amount of field target engagement practice completed during training, the average number of hits achieved during the first 10 firings completed during the Fort Benning Record Fire evaluation is likely to be significantly greater than the average number of hits achieved during the 10 warm-up firings conducted prior to the first Record Fire evaluation session in the Fort Dix program.
- o If field target engagement practice is a necessary prerequisite for obtaining target hits during daylight marksmanship proficiency testing, the average percentage of hits achieved by trainees completing the Fort Benning Record Fire is likely to be significantly higher than the average percentage of hits achieved by trainees completing the Fort Dix Record Fire. However, the magnitude of any observed differences is likely to be inflated. This is because the Fort Benning Record Fire evaluation is an inherently better measure of pre-Record Fire marksmanship proficiency than the Fort Dix evaluation.

AUTOMATIC RIFLE MARKSMANSHIP

Both the Fort Dix and Fort Benning programs provided for automatic rifle marksmanship training. The analysis of the programs showed that the instruction conducted by both programs is very similar. However,

the training requirements of the two programs differ significantly. The requirements for the Fort Dix program provide trainees an opportunity to only practice the engagement of briefly appearing targets and emphasizes only the attainment of target hits. The Fort Benning program requirements, on the other hand, emphasize not only the attainment of target hits, but also their accurate placement during firing.

Because of this fundamental difference in training emphasis, the effectiveness of the two programs cannot be assessed through a relative comparison. Further, because neither program provides for the conduct of an automatic rifle marksmanship proficiency evaluation, the assessment of the relative effectiveness of these programs via proficiency testing is also not possible. As a consequence, empirical assessment of the training effectiveness of the two programs is not possible.

NIGHT MARKSMANSHIP

Successful completion of the Fort Dix and Fort Benning BRM programs is dependent upon demonstrated night marksmanship proficiency. In the Fort Dix program, trainees complete a formal period of night marksmanship training, i.e., they receive instruction in this topic and complete a practical exercise that provides them an opportunity to practice firing the M16A1 rifle at night. However, their training is not followed by a formal proficiency evaluation. Instead, proficiency is assessed in terms of the number of hits achieved while firing in the automatic mode during the night practice session.

In the Fort Benning program, trainees do not complete a formal period of instruction followed by practice. Instead, they receive instruction in night marksmanship which is immediately followed by a night marksmanship proficiency test. Firing during this test is conducted in both the semiautomatic and automatic modes. Proficiency in night firing is based on the results of this evaluation.

From the above description it is clear that night marksmanship proficiency is addressed and established in a distinctly different way by each program. Further, as shown in Table 9, the Fort Dix program requires a much lower proportion of hits for qualification than the Fort Benning program. Because of these differences, empirical assessment of the training effectiveness of the two programs with respect to night marksmanship is not practical.

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APPENDIX A

MOLAR ANALYSIS OF THE BRM TEST TRAINING PROGRAMS

RESULTS OF THE BRM TEST TRAINING PROGRAMS

As discussed in the introduction of this report, the four BRM test training programs were simultaneously implemented and tested at Fort Jackson, South Carolina during the Spring of 1975. The ARI and Mellonics are analyzing data generated during this test to assess the effects of selected individual difference variables on BRM acquisition and terminal performance. The training value of specific segments of the programs is also being assessed. During the preliminary phase of this analysis, a requirement was identified to compare the four BRM programs and define the similarities and differences existing among them. Once determined, this information would be employed to assist in the development of research hypotheses to be tested during the later stages of the BRM Test data analysis.

In this section of the report, the results of a molar level comparative analysis of the four programs is presented. The primary data for the analysis consisted of the POIs describing the BRM programs and information derived from interviews with personnel involved in the conduct of the BRM Test. At best, these data specified only the basic details of the four programs. For this reason, the comparative analysis was molar in nature and produced relatively broad findings. The results of the analysis are presented in terms of the following:

- o Program Composition
- o Training Emphasis
- o Training Content

a. Practice Requirements

b. Training Objectives

c. Training Practices

One additional purpose of the documentation and analysis of the four training programs was to identify and compare the quality control procedures for these. During the conduct of the documentation and analysis, it was discovered that all of the programs employed essentially the same quality control procedures. For this reason, this topic was not addressed separately for each program in the program description section. Instead, it was judged appropriate to present a discussion of program quality control procedures as the last part of this section of the report.

PROGRAM COMPOSITION

A training program usually consists of a sequence of training and evaluation phases. Training phases are designed to provide instruction in selected subject matter areas and opportunities to practice the application of information and skills acquired during instruction. Evaluation phases are designed to assess proficiency with respect to instruction and practice completed prior to the evaluation. The essential nature of a training program is therefore directly indicated by the nature of the training and evaluation phases composing it.

Table A-1 presents the training and evaluation phases included in each of the BRM Test training programs. An inspection of this table revealed the following between-programs similarities and differences:

Table A-1

TRAINING AND EVALUATION PHASES INCLUDED IN EACH BEN TEST TRAINING PROGRAM

Phase	Purpose of Phase	ASUBJSCD	Fort Banning	Fort Dix	Fort Jackson
Orientation & Mechanical Training	Orientation to BM. Teach the mechanical operation and maintenance of the M16A1 rifle.	X	X	X	X
Preparatory Marksmanship Training	Teach marksmanship fundamentals.	X	X	X	X
Record Fire Preparation I Training	Teach the principles of field target engagement and prepare for the Day Record Fire I evaluation.	X	X	X	X
Day Record Fire I Evaluation	Assess daylight marksmanship proficiency.	X	X	X	X
Record Fire Preparation II Training	Teach the principles of field target engagement and prepare for the Day Record Fire II evaluation.	X	-	-	-
Day Record Fire II Evaluation	Assess daylight marksmanship proficiency.	X	-	-	-
Automatic Rifle Firing Training	Teach the use of the M16A1 rifle in the automatic mode.	X	X	X	X
Night Rifle Firing Training	Teach the use of the M16A1 rifle at night and during periods of limited visibility.	X	-	X	X
Night Record Fire	Assess night marksmanship proficiency.	X	X	-	X

- o All of the programs provide for an orientation to BEM.
- o All of the programs present instruction in the mechanical operation of the M16A1 rifle.
- o All of the programs present some form of instruction in and provide for the practice of marksmanship fundamentals.
- o All of the programs present instruction in and provide for the practice of the principles of field target engagement. This training is preparatory for the daylight Record Fire evaluation.
- o All of the programs provide for the assessment of daylight marksmanship proficiency via a daylight Record Fire evaluation. For the ASUBJSCD, Fort Dix, and Fort Jackson programs, this evaluation is conducted in two phases, while for the Fort Benning program, it is conducted in a single phase.
- o For the ASUBJSCD and Fort Jackson programs, both daylight Record Fire evaluations are preceded by a preparatory Record Fire training phase. For the Fort Dix program, only the first daylight proficiency evaluation is preceded by a preparatory Record Fire training phase.
- o All of the programs provide for some form of instruction and practice in the use of the M16A1 rifle in the automatic mode. In no case is this training followed by a proficiency test designed to evaluate automatic rifle marksmanship.

o All of the programs address the use of the M16A1 rifle at night and during periods of limited visibility. Only two of the programs (ASUBJSCD and Fort Jackson) provide for both a night rifle firing training phase and a night Record Fire evaluation phase. Of the remaining programs, the Fort Benning program provides only for an evaluation of night marksmanship proficiency, while the Fort Dix program provides only for training in the use of the M16A1 rifle at night and during periods of limited visibility. However, successful completion of this program is dependent on the number of hits achieved during the practice phase of night rifle firing.

These results show that, in terms of program composition, the ASUBJSCD and Fort Jackson programs are identical. Further, the results show that the composition of the Fort Benning and Fort Dix programs differ markedly from the two identically constituted programs. Three basic features of the Fort Benning program distinguish it from the two identical programs:

- o All of the Fort Benning Record Fire preparation training is conducted in a single phase prior to the Fort Benning daylight Record Fire evaluation.
- o The Fort Benning Record Fire evaluation is conducted in a single phase.
- o A formal night rifle firing training phase is not included in the Fort Benning program.

For the Fort Dix program, the features distinguishing it from the two identical programs are:

- o All of the Fort Dix Record Fire preparation training is conducted in a single phase prior to the Fort Dix daylight Record Fire evaluations.
- o A formal night Record Fire evaluation phase is not included in the Fort Dix program.

Finally, the results of this analysis indicate that the Fort Benning and the Fort Dix programs are very similar in composition except for the following differences:

- o The Fort Benning Record Fire evaluation is conducted in a single phase, while the Fort Dix evaluation is conducted in two successive phases.
- o The Fort Benning program has a formal night Record Fire evaluation which is preceded by a formal night rifle firing training phase. In contrast, the Fort Dix program has a formal night rifle firing training phase, but this is not followed by a formal night Record Fire evaluation.

TRAINING EMPHASIS

The emphasis of a training program is broadly reflected by the amount of time allocated to the various training phases composing a training program. Table A-2 lists the number of hours allocated for the completion of the training phases included in each of the BRM Test programs. An inspection of this table

Table A-2

DISTRIBUTION OF PROGRAM HOURS ACROSS THE TRAINING PHASES DEFINING EACH BEN TEST TRAINING PROGRAM

Phase	ASUBJSD	Fort		Fort	Fort
		Banning	Dix		Jackson
Orientation and Mechanical Training	4	4	4		
Preparatory Marksmanship	22	8	20		10
Record Fire Preparation I	16	12	8		16
Record Fire Preparation II	14	-	-		8
Automatic Rifle Firing	3	3	2.5		2
Night Rifle Firing	3	-	2.5		3
Total Training	64	27	37		44

revealed the following between programs similarities and differences:

- o All of the programs allocate the same amount of time to orientation and mechanical training (4 hours).
- o The amount of time allocated to preparatory marksmanship training varies significantly across the four BRM programs. The ASUBJSCD and Fort Dix programs allocate the greatest amount of time to this training (22 and 20 hours, respectively), the Fort Jackson program the next greatest amount of time (16 hours), and the Fort Benning program the least amount of time (8 hours).
- o The amount of time allocated to Record Fire preparation training also varies significantly across the four training programs. For this training, the ASUBJSCD and Fort Jackson programs allocate the greatest amount of time (30 and 24 hours, respectively), the Fort Benning program the next greatest amount of time (12 hours), and the Fort Dix program the least amount of time (8 hours).
- o For automatic rifle firing training, the amount of time allocated varies only slightly across the four BRM programs. The ASUBJSCD and Fort Benning programs each allocate 3 hours to this training, while the Fort Dix program allocates 2.5 hours and the Fort Jackson program allocates 2 hours.
- o Only three of the BRM Test programs (ASUBJSCD, Fort Dix, and Fort Jackson) allocate time for a night rifle firing

training phases. For these programs there is some moderate variability in the time allocated for conducting this training. The ASUBJSCD program allocates the greatest amount of time (5 hours), the Fort Jackson program the next greatest amount of time (3 hours), and the Fort Dix program the least amount of time (2.5 hours).

- o The total amount of time allocated for all training phases varies significantly across the four programs. This variation is primarily due to major between-programs variations in the time allocated to the preparatory marksmanship, Record Fire preparation, and night rifle firing training phases.

In summarizing these results, three distinct between-programs differences emerge. First, the ASUBJSCD and Fort Dix programs place a greater emphasis on preparatory marksmanship training than either the Fort Jackson or Fort Benning programs, with the latter program placing the least emphasis on this training.

Second, the ASUBJSCD and Fort Jackson programs place a greater emphasis on Record Fire preparation training than either the Fort Benning or Fort Dix programs, with the latter placing the least emphasis on this training.

Third, for the programs that include a night rifle firing phase in training, the ASUBJSCD program places a greater emphasis on this training than either Fort Dix or Fort Jackson programs.

TRAINING CONTENT

The knowledge and skill areas covered by a training program are indicated by the content areas addressed during training. Tables A-3 through A-7 list the content areas for which instruction was provided in each of the BRM Test training programs. An inspection of these tables revealed the following similarities and differences for these content areas:

- o All of the programs provide for some form of orientation to BRM instruction prior to the conduct of mechanical training. As shown in Table A-3, the nature of this orientation varies across the programs with the ASURJSCD and Fort Dix orientations being the most comprehensive and the Fort Benning orientation the least comprehensive.
- o Training in the mechanical operation of the M16A1 rifle is the first phase of training completed in each of the programs. For this instruction, a common set of content areas is addressed: rifle nomenclature, clearing the rifle, function check, immediate action, rifle preventive maintenance, and rifle loading and unloading.
- o Only the Fort Benning and Fort Dix programs supplement the common instructional areas for the mechanical operation of the rifle with additional content areas. For the Fort Benning program, these supplemental areas are: rifle characteristics, the rifle functioning cycle, stoppages,

Table A-1
 CO-101 AREAS ADDRESSED DURING THE ORIENTATION AND MECHANICAL TRAINING PHASE FOR EACH SEMI-ANNUAL TRAINING PROGRAM

Content Area	ASST/JSCD	Port Banning	Port Six	Port Decagon
Orientation				
Description of the SEM Training	X	X	X	
History of the Rifle Marksmanship Program	X		X	X
Development of the Rifle	X		X	
Role of the Rifleman	X		X	
General Description of the Rifle				
Rifle Nomenclature	X	X	X	X
Clearing the Rifle	X	X	X	X
Disassembly of the Rifle	X	X	X	X
Assembly of the Rifle	X	X	X	X
Function Check of the Rifle	X	X	X	X
Immediate Action	X	X	X	X
Rifle Preventative Maintenance	X	X	X	X
Loading the Rifle	X	X	X	X
Unloading the Rifle	X	X	X	X

(cont. in next)

Table A-1 (continued)
 CONTENT AREAS ADDRESSED DURING THE ORIENTATION AND MECHANICAL TRAINING PHASE FOR EACH BBN TEST TRAINING PROGRAM

Content Area	ASSEMBLED	FIELD SERVICE	FIELD DIX	FIELD TRAINING
Rifle Characteristics			X	
Rifle Functioning Cycle			X	
Stoppages			X	
Feed/Ret Action			X	
Rifle Ammunition			X	
Disassembly of the Rifle Magazine				
Assembly of the Rifle Magazine				
Loading the Rifle Magazine		X	X	
Unloading the Rifle Magazine		X	X	
Preliminary Care of the Rifle			X	

Table A-4

CONTENT AREAS ADDRESSED DURING THE PREPARATORY MARKSMANSHIP TRAINING PHASE FOR EACH BEN TEST TRAINING PROGRAM

Content Area	ASUMJSCD	Fort Benning	Fort Dix	Fort Jackson
Principles of Aiming and Sight Alignment	X	X	X	X
Sight Adjustment	X	X	X	X
Shot Error Analysis	X	X	X	X
Principles of Bottlelight Zero	X	X	X	X
Methods for Practicing Aiming and Sight Alignment	X	X	X	X
Steady Hold of the Rifle	X	X	X	X
Following	X	X	X	X
Immediate Action (Review)	X	X	X	X
Rifle Firing Positions				
Prone Supported	X	X	X	X
Prone Unsupported	X	X	X	X
Prone	X	X	X	X
Kneeling Unsupported	X	X	X	X
Kneeling Supported	X	X	X	X
Standing	X	X	X	X
Negative Changing		X		
Target Detection				
Range Estimation				X

Table A-5

CONTENT AREAS ADDRESSED DURING THE RECORD FIRE PREPARATION TRAINING FOR EACH DEM TEST TRAINING PROGRAM

Content Area	ASUSJSCD	Fort Benning	Fort Dix	Fort Jackson
Center - of - Target Engagement Method	X	X	X	X
Multiple Target Engagement	X	X	X	X
Immediate Action	X ^a	X ^a		X
Rapid Reloading	X	X		
Target Detection	X	X		
Range Estimation	X	X		
Principles of Aiming	X ^a		X ^a	X ^a
Working with a Loaded Weapon	X		X	
Changing from Alternate Firing Positions	X			
Rasty Aimed Firing Technique	X			
"Cross and Thumb" Range Determination		X		
Steady Hold of the Rifle			X	
Rifle Firing Positions				
Prone Supported	X ^a		X ^a	X
Prone Unsupported	X ^a		X ^a	X
Feenole	X ^a		X ^a	X
Kneeling Unsupported	X ^a		X ^a	X
Kneeling Supported	X ^a		X ^a	X
Standing	X ^a		X ^a	X

^a Review of the content area.

Table A-6
CONTENT AREAS ADDRESSED DURING THE AUTOMATIC RIFLE FIRING PHASES FOR EACH DEM TEST TRAINING PROGRAM

Content Area	ASUMJSCD	Port Banning	Port Dis	Port Jacks
Fundamentals of Automatic Rifle Firing	X	X ^a	X	X
Rapid Magazine Changing	X	X ^a	X	X
Steady Hold of the Rifle in the Automatic Mode		X ^a		
tripod-Supported Prone Firing Position	X	X ^a	X	X
Center - of - Target Engagement Method	X		X	X
Air Target Engagement	X		X	X
Fire Distribution Techniques	X		X	X
Engagement of Field-Type Targets	X		X	X

^aAlso addressed in a concurrent training session conducted during the Port Banning Day Record Fire evaluation phase.

Table A-7

CONTENT AREAS ADDRESSED DURING THE NIGHT RIFLE FIRING TRAINING PHASE FOR THE ASUBJSCD, FORT DIX, AND FORT JACKSON
BAM PROGRAMS AND THE NIGHT SECOND FIRE EVALUATION PHASE FOR THE FORT BENNING BAM PROGRAM

Content Area	ASUBJSCD	Fort Benning	Fort Dix	Fort Jackson
Principles of Night Vision	X	X	X	X
Night Fire Pointing Technique	X	X	X	X
Principles of Night Firing	X	X	X	X
Night Level Sight System		X		

operation, rifle operation, magazine assembly and disassembly, and magazine loading and unloading. For the Fort Dix program, the supplemental instruction is for rifle characteristics, the rifle functioning cycle, stoppages, remedial action, and loading and unloading the magazine.

- o Only the Fort Dix program provides instruction during the mechanical training phase in the basic requirements for zeroing the rifle. In the other programs, this topic is addressed for the first time during preparatory marksmanship training.
- o For preparatory marksmanship training, all of the programs address a common set of rifle marksmanship fundamentals: The principles of aiming and sight alignment, sight adjustment, shot group analysis, and the principles of battlesight zero. Additionally, all of the programs present training in methods for practicing aiming and sight alignment.
- o During preparatory marksmanship training, the steady hold of the rifle is specifically addressed in all but the Fort Jackson program. Followthrough is specifically addressed in all but the Fort Dix program during this phase. It could not be determined if these exceptions were due to an oversight on the part of program developers or a deliberate omission.

- o Immediate action is explicitly reviewed during the preparatory marksmanship training phase in all but the Fort Benning program.
- o During preparatory marksmanship training, all of the programs provide for some instruction in the assumption of a firing position. The particular positions addressed vary across the programs. The ASUBJSCD and Fort Dix programs address the six basic firing positions (prone supported, prone unsupported, foxhole, kneeling unsupported, kneeling supported, and standing positions) during this training. The Fort Benning program addresses all but the standing position during this phase. In contrast, the Fort Jackson program addresses only the prone supported position in this phase.
- o Only the Fort Benning program explicitly addresses magazine changing during the preparatory marksmanship training phase. This topic is not explicitly addressed in the other programs until the Automatic Rifle Firing training phase.
- o Instruction in the principles of target detection and range estimation is presented only by the Fort Dix program during preparatory marksmanship training. In the other programs, this instruction is not presented until the Record Fire preparation phase of training.
- o During Record Fire preparation training, only two content areas are addressed by all of the BRM training programs:

the center-of-target and immediate action and the engagement of multiple targets. In addition to these areas, the ASUBISCD and Fort Jackson programs provide instruction in the areas of rapid reloading, moving with a loaded weapon, and changing from alternate firing positions. These programs also provide a review of immediate action and the principles of aiming. The Fort Benning program limits its additional instruction during this phase to an explanation of rapid reloading, the "crack-and-thump" range determination method and a review of immediate action. In contrast, the Fort Dix program limits its additional instruction to instruction in moving with a loaded weapon and a review of the principles of aiming and the steady-hold factors.

- o The ASUBISCD program is the only program that provides for instruction in the Hasty Aimed Fire technique. This instruction is implemented during the Record Fire preparation training phase in this program.
- o During Record Fire preparation training, the explanation and demonstration of selected firing positions is continued in the Fort Jackson program. This includes instruction in the prone unsupported, foxhole, kneeling unsupported, kneeling supported, and standing firing positions.
- o All of the programs provide some form of instruction in the use of the M16A1 rifle in the automatic mode. For this instruction, a common core of content areas is ad-

dressed: fundamentals of automatic rifle firing, rapid magazine changing, and the bipod-supported prone firing position. For the Fort Benning program, this instruction is supplemented with instruction in the steady-hold of the rifle for the automatic mode of firing. In contrast, the other programs supplement the core instruction with instruction in the center-of-target engagement method area target engagement, and fire distribution techniques. Additionally, the Fort Jackson program further supplements this instruction with instruction in the engagement of field-type targets.

- o All of the programs present some form of instruction in night rifle firing. For the ASUBJSCD, Fort Dix, and Fort Jackson programs, this occurs during a formal night rifle firing training phase. In contrast, the Fort Benning program's instruction in this area is implemented prior to its Night Record Fire Evaluation. A common set of content areas is addressed by all programs for this instruction: the principles of night vision and the night fire pointing technique. In the ASUBJSCD program, this instruction is supplemented with an explanation of the principles of night firing. In the Fort Benning program, this instruction is supplemented with instruction in the use of the Low Light Level Sight System. For the Fort Dix and Fort Jackson programs, there is no supplemental instruction in night rifle firing.

In summary, the appraisal of the content areas receiving attention in the Fort BEN Test program shows that many of the

same areas are addressed in most of the programs. With respect to these common areas, major differences between programs are associated with the timing of content presentation.

The appraisal also reveals that all of the programs supplement common instructional content areas with instruction in other related areas. Variations in this supplemental instruction do not appear to be systematic across programs.

These findings suggest that the programs were developed by personnel having common backgrounds and using similar reference sources. It is likely, however, for a given program, that the inclusion or exclusion of given content areas was, to a large extent, based on the judgements of the personnel developing the program, and their immediate requirements, rather than on any systematic study of the content areas necessary for adequately addressing instruction in rifle marksmanship.

PRACTICE REQUIREMENTS

In addition to providing instruction in selected knowledge and skill areas, training programs provide opportunities for completing practical exercises designed to develop proficiency in accomplishing selected tasks. The practical exercise activities characteristic of a training program indicate the tasks that a trainee should be able to perform upon the successful completion of training. Tables A-8 through A-14 list the practical exercise activities conducted during the completion of each of the BRM Test programs. An inspection of these tables revealed the following similarities and differences for these activities across programs:

Table A-8

**PRACTICAL EXERCISES CONDUCTED DURING THE ORIENTATION AND MECHANICAL
TRAINING PHASE FOR EACH BRM TEST TRAINING PROGRAM**

Type of Practical Exercise	ASUBJSCD	Fort Benning	Fort Dix	Fort Jackson
Clearing Rifle	X	X		X
Disassembly of Rifle	X	X	X	X
Assembly of Rifle	X	X	X	X
Rifle Function Check	X	X		X
Application of Immediate Action	X	X	X	X
Conduct of Preventive Maintenance	X	X		X
Loading Rifle	X	X		X
Unloading Rifle	X	X		X
Disassembly of Rifle Magazine		X		
Assembly of Rifle Magazine		X		
Loading Rifle Magazine		X		
Unloading Rifle Magazine		X		

Table A-9

PRACTICE ACTIVITIES CONDUCTED DURING THE PREPARATORY MARKSMANSHIP TRAINING PHASE FOR EACH BSM TEST TRAINING PROGRAM

Practice Activity	Purpose of Activity	ASUBJSCD	Fort Benning	Fort Dix	Fort Jackson
Transposition Exercise	Practice Aiming Point Placement and Sight Alignment	X	X	X	X
Aiming Bar Exercise	Practice Aiming Point Placement and Sight Alignment	-	-	X	X
Paize Sighting Device Exercise	Practice Aiming Point Placement and Sight Alignment	X	-	-	X
WIS Sighting Device Exercise	Practice Sight Alignment	X	-	X	X
"Ball-and-Dummy" Exercise	Practice Trigger Squeeze	X	-	X	X
"Washer-and-Disc" Exercise	Practice Assumption of Firing Positions and Application of the Steady Hold Factors	-	-	-	X
Assumption of Firing Positions					
Prone Supported		X	X	X	X
Prone Unsupported		X	X	X	-
Foxhole		X	X	X	-
Kneeling Supported		X	X	X	-
Kneeling Unsupported		X	X	X	-
Standing		X	-	X	-
Preparatory Live-Fire Exercises	Practice Application of Marksmanship Fundamentals				
Prone Unsupported Position		9	3 Rounds	-	-
Foxhole Position		9	-	-	-
Kneeling Supported		-	3 Rounds	-	-
Battlesight Zero Firing	Achieve a Battlesight Zero	75 Rounds ^a	36 Rounds ^b	15 Rounds ^a	45 Rounds ^a
Total Firings by End of Preparatory Marksmanship Phase		93 Rounds	62 Rounds	14 Rounds	45 Rounds
Target Detection Practical Exercise	Apply Principles of Target Detection	-	-	X	-
Range Estimation Practical Exercise	Apply Principles of Range Estimation	-	-	X	-

^a Battlesight zero firing conducted from prone supported position.^b Battlesight zero firing conducted from foxhole position.

Table A-10

PRACTICE ACTIVITIES CONDUCTED DURING THE RECORD FIRE PREPARATION TRAINING FOR EACH NEW TEST TRAINING PROGRAM

Practice Activity	Purpose of Activity	ASB/SCD	Port Benning	Port Davis	Fort Jackson
Known Distance Firing ^a	Confirm Battleground Zero	-	6 Rounds ^b	12 Rounds ^b	-
Field Firing	Practice Firing at Combat-Live Targets and Prepare for the Day Record Fire Evaluation	253 Rounds	112 Rounds	36 Rounds	202 Rounds
Heavy Armed Firing	Practice the Heavy Armed Firing Technique	60 Rounds	-	-	-
Target Detection	Apply Principles of Target Detection	X	X	-	X
Range Estimation	Apply Principles of Range Estimation	X	X	-	X
Assumption of Firing Positions	Practice Assumption of Firing Positions and Application of Steady Hold Factors				
Prone Unsupported					X
Prone Supported					X
Kneeling Unsupported					X
Standing					X

^a Fired from the prone supported firing position at a 253-meter target.^b Fired from the prone unsupported firing position at a 200 yard target.

Table A-11
 NUMBER OF TARGET ENGAGEMENTS CONDUCTED AND NUMBER OF TARGETS FIRED ON DURING RECORD
 PREPARATION TRAINING FOR EACH BN TEST TRAINING PROGRAM

Type of Engagement	ASUBJSCD	Fort Benning	Fort Dix	Fort Jackson
Single Number of Targets	114 114	61 61	16 16	120 120
Multiple Number of Targets	61 139	21 51	8 20	38 82
All Number of Targets	175 253	82 112	14 36	158 202

Table A-12
NUMBER OF TARGET ENGAGEMENTS-CONDUCTED DURING REQUIRED FIRE PREPARATION TRAINING FOR EACH BSM TRAINING PROGRAM

Type of Engagement	AS/USCD	Fort Belling	Fort Dix	Fort Jackson
Target Range	S P L	S M L	S M L	S M L
Fire Position				
Fire Position	16 9 3	8 9 7	0 0 0	0 0 0
Fire Support	12 5 1	0 0 0	0 0 0	0 0 0
Fire Unsupported	8 13 7	8 8 4	0 0 0	0 0 0
Kneeling Supported	6 7 3	2 2 2	1 1 0	1 1 0
Kneeling Unsupported	4 5 2	3 2 2	2 1 2	2 1 2
Standing	11 2 0	2 1 0	2 1 0	2 1 0
Total Engagements	57 41 16	21 21 13	5 4 2	5 4 2
Target Range	S P L	S M L	S M L	S M L
Fire Position				
Fire Position	16 9 3	8 9 7	0 0 0	0 0 0
Fire Support	12 5 1	0 0 0	0 0 0	0 0 0
Fire Unsupported	8 13 7	8 8 4	0 0 0	0 0 0
Kneeling Supported	6 7 3	2 2 2	1 1 0	1 1 0
Kneeling Unsupported	4 5 2	3 2 2	2 1 2	2 1 2
Standing	11 2 0	2 1 0	2 1 0	2 1 0
Total Engagements	57 41 16	21 21 13	5 4 2	5 4 2
Target Range	S P L	S M L	S M L	S M L
Fire Position				
Fire Position	16 9 3	8 9 7	0 0 0	0 0 0
Fire Support	12 5 1	0 0 0	0 0 0	0 0 0
Fire Unsupported	8 13 7	8 8 4	0 0 0	0 0 0
Kneeling Supported	6 7 3	2 2 2	1 1 0	1 1 0
Kneeling Unsupported	4 5 2	3 2 2	2 1 2	2 1 2
Standing	11 2 0	2 1 0	2 1 0	2 1 0
Total Engagements	57 41 16	21 21 13	5 4 2	5 4 2

• Short range, i.e., 50, 75, 100 meters
 • Medium range, i.e., 150, 175, 200 meters
 • Long range, i.e., 250, 300 meters

Table A-13

TRAINING ACTIVITIES CONDUCTED DURING THE AUTOMATIC RIFLE FIRING PHASE FOR EACH BIV TEST TRAINING PROGRAM

Procedure	Purpose of Activity	ADJDCO	Port Benning	Port Nk	Port Jackson
Range Estimation Practice	Apply Principles of Range Estimation	X			
Live Firing	Practice Using the M16A1 Rifle in the Automatic Mode	X	X	X	
Prone Position					
Support of Range					
Engagement: Prone					
Engagement: Kneeling					
Engagement: Standing					
Target Range:					
25-Meter					
50-Meter					
75-Meter					
100-Meter					
125-Meter					
150-Meter					
175-Meter					
200-Meter					
225-Meter					
250-Meter					
275-Meter					
300-Meter					
325-Meter					
350-Meter					
375-Meter					
400-Meter					
425-Meter					
450-Meter					
475-Meter					
500-Meter					
525-Meter					
550-Meter					
575-Meter					
600-Meter					
625-Meter					
650-Meter					
675-Meter					
700-Meter					
725-Meter					
750-Meter					
775-Meter					
800-Meter					
825-Meter					
850-Meter					
875-Meter					
900-Meter					
925-Meter					
950-Meter					
975-Meter					
1000-Meter					
1025-Meter					
1050-Meter					
1075-Meter					
1100-Meter					
1125-Meter					
1150-Meter					
1175-Meter					
1200-Meter					
1225-Meter					
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1875-Meter					
1900-Meter					
1925-Meter					
1950-Meter					
1975-Meter					
2000-Meter					
2025-Meter					
2050-Meter					
2075-Meter					
2100-Meter					
2125-Meter					
2150-Meter					
2175-Meter					
2200-Meter					
2225-Meter					
2250-Meter					
2275-Meter					
2300-Meter					
2325-Meter					
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3025-Meter					
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3075-Meter					
3100-Meter					
3125-Meter					
3150-Meter					
3175-Meter					
3200-Meter					
3225-Meter					
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4050-Meter					
4075-Meter					
4100-Meter					
4125-Meter					
4150-Meter					
4175-Meter					
4200-Meter					
4225-Meter					
4250-Meter					
4275-Meter					
4300-Meter					
4325-Meter					
4350-Meter					
4375-Meter					
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5275-Meter					
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6175-Meter					
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6225-Meter					
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7900-Meter					
7925-Meter					
7950-Meter					
7975-Meter					
8000-Meter					
8025-Meter					
8050-Meter					
8075					

Table A-1c

PRACTICE ACTIVITIES CONDUCTED DURING THE NIGHT RIFLE FIRING PHASE FOR EACH BMY TEST TRAINING PROGRAM

Practice Activity	Purpose of Activity	AMUJSCD	Port Number	Port Dia	Port Section
25-Meter Targets, Semi-automatic Mode	Practice Using the M16A1 Rifle to fire stage targets at night	7	-	2	-
25-Meter Targets, Semi-automatic Mode		10	-	-	-
25-Meter Targets, Semi-automatic Mode		1	-	-	-
25-Meter Targets, Semi-automatic Mode		10	-	-	-
25-Meter Targets, Automatic Mode		6	-	30	-
25-Meter Targets, Automatic Mode		30	-	-	-
25-Meter Targets, Automatic Mode		10	-	-	-

program
opportunities for the following

tasks: rifle clearing, rifle disassembly, rifle assembly, and the application of immediate action. For the ASUBJSCD, Fort Benning, and Fort Jackson programs, practice is also conducted in the following additional areas: the rifle function check, rifle preventive maintenance, and the procedures for loading and unloading the rifle. Additionally, in the Fort Benning program, trainees practice magazine disassembly and assembly and the procedure for loading and unloading the magazine.

- o During the preparatory marksmanship training phase of each program, opportunities are provided for practicing aiming point placement and sight alignment. The practice exercises employed for this purpose vary across programs. The Fort Benning program employs only one exercise for this purpose, the Transposition Exercise. In contrast, the other programs employ three exercises for this purpose. For the ASUBJSCD and Fort Jackson programs, these are the Transposition Exercise, the Paige Sighting Device exercise, and the M15 Sighting Device exercise. In the Fort Dix program, these are the Transposition exercise, the M15 Sighting Device exercise, and the Aiming Bar exercise.
- o All but the Fort Benning program specifically schedule trigger pull practice in preparatory marksmanship training. The ASUBJSCD and Fort Dix programs employ

the "Ball-and-Bowling" exercise for its purpose, while the Fort Jackson program is for the same and, as well, the "Washer-and-Dime" exercise.

- o The firing positions practiced during preparatory marksmanship training vary across programs. In the ASUBJSCD and Fort Dix programs, all of the six basic firing positions is practiced during this phase. In the Fort Benning program, the assumption of all but the standing position is practiced. Finally, in the Fort Jackson program, only the assumption of the prone supported position is practiced.
- o Live - firing practice is conducted by all programs during the preparatory marksmanship phase. For the Fort Dix and Fort Jackson programs, all of their firing is dedicated to the achievement of a battlesight zero. For the ASUBJSCD and Fort Benning programs, this firing is divided between firings to achieve battlesight zero and firing practice for selected positions.
- o Battlesight zero firing in the ASUBJSCD, Fort Dix, and Fort Jackson programs is conducted from the prone supported position, while in the Fort Benning program, this firing is conducted from the foxhole position.
- o The rounds allocated for battlesight zero firing varies significantly across the four programs. The ASUBJSCD program allocates the greatest number of rounds for this purpose (73 rounds), the Fort Dix and Fort Jackson

Programs the next greatest number of rounds 148 and 45 rounds, respectively. In the Fort Benning program the least number of rounds (36 rounds).

- o In the Fort Dix program target detection and range estimation practice is conducted (like training for these areas) during the preparatory marksmanship training phase. For the other programs this practice is conducted during the Record Fire preparation training phases.
- o Known distance firing is conducted only during the completion of the Fort Benning and Fort Dix programs. For the Fort Benning program, six rounds are fired from the prone supported position against a 250-meter target. In contrast, for the Fort Dix program 12 rounds are fired from the prone unsupported position against a 200-yard target.
- o All of the programs conduct some form of field fire practice during their respective Record Fire preparation training phases. As shown in Tables 1 and 2, this practice varies considerably across programs. The greatest number of rounds fired during this training are fired by trainees in the ASUBJSCD program (253 rounds); the next greatest are fired by trainees in the Fort Jackson program (200 rounds); the next greatest are fired by trainees in the Fort Benning program (112 rounds); and the least number are fired by

trainees in the Fort Dix program (36 rounds).

- o During field firing, both single and multiple target engagements are conducted, but the number of these varies significantly across programs. The greatest number of single target engagements occur in the ASUBJSCD and Fort Jackson programs (114 and 120 engagements, respectively), the next greatest number in the Fort Benning program (61 engagements), and the least number in the Fort Dix program (16 engagements). The greatest number of multiple target engagements also occur in the ASUBJSCD program (61 engagements), the next greatest number in the Fort Benning program (21 engagements), and the least number in the Fort Dix program (8 engagements).
- o The number of firing positions trainees fire from during field firing also varies significantly across programs. In the ASUBJSCD, the trainees fire from each of the six basic positions at some time during field firing. In the Fort Benning and Fort Jackson programs trainees fire from only four of the six basic positions (foxhole, prone unsupported, kneeling unsupported, and kneeling supported) during field firing. Finally, in the Fort Dix program four of the six firing positions are employed by trainees during field firing. Three of these (foxhole, kneeling supported, and kneeling unsupported) are the same as those employed by the Fort

Benning and Fort Jackson programs. The fourth position employed by the Fort Dix trainees is the standing position.

- o As noted previously, only the ASUBJSCD program provides for the training in the Hasty Aimed Fire technique. Practice in the application of this technique occurs following training in the technique. This practice involves firing 40 rounds at 15- and 30-meter targets.
- o All of the BRM training programs provide for some form of automatic rifle firing practice. For all of the programs this practice is conducted from the bipod-supported prone position. However, the exact nature of this practice varies across programs. For the Fort Benning program trainees fire at the 25-meter automatic fire target which, when hit, does not fall. In contrast, for the other programs trainees fire at E-type silhouette, pop-up targets. When hit, these fall down. For the ASUBJSCD program, both single and multiple targets are engaged, while in the other programs only single targets are engaged. Finally, for the ASUBJSCD and Fort Jackson programs targets are located at multiple target ranges (75, 175, and 300 meters for the ASUBJSCD program and 25 and 75 meters for the Fort Jackson program). In contrast, for the other programs targets are located at a single range (25 meters in the Fort Benning and 50 meters for the Fort Dix program).
- o As noted previously, only three of the BRM test training

programs (ASUBJSCD, Fort Dix, and Fort Jackson) have formal night rifle firing training phases. The live-firing practice associated with this training is conducted for these programs from the bipod-supported prone position. Otherwise, across the programs, the nature of this practice varies considerably. For the ASUBJSCD and Fort Jackson programs, firing is conducted in both the semiautomatic and automatic modes of fire, while in the Fort Dix program it is conducted only in the automatic mode. For the ASUBJSCD and Fort Jackson programs, this practice involves the engagement of both 25- and 50-meter targets, while in the Fort Dix program only 50-meter targets are engaged. Finally, in the ASUBJSCD program, both day and night practice is conducted. In contrast, the Fort Dix and Fort Jackson programs conduct practice only at night.

The preceeding analysis of program practice activities shows that across the four BRM test programs numerous and complex differences exist. These differences do not occur in any systematic manner from one training phase to another. Because of this a global summary of these differences across programs is not feasible. Further because of these differences analysis of live-fire performance data for these practice activities should be conducted on an activity-by-activity basis. In this way, differences specific to given collections of practice activities across programs can be taken into account during interpretation of analysis results.

TRAINING OBJECTIVES

The training objectives supporting a training program are suppose to describe exactly what the trainee must be able to do at the completion of training. In particular, they should specify the following:

- o The tasks trainees must be able to perform after training is completed.
- o The conditions under which each task is to be performed.
- o The minimum acceptable proficiency required in the performance of each task.

Once developed, the training objectives for a program should indicate the content areas that should be addressed during training and the practice activities required to support content area instruction.

The objectives associated with each of the BRM Test training programs are listed as part of the description of these programs. An inspection of these objectives shows that all except the objectives for the Fort Benning program, are poorly written. In particular, the objectives for the ASUBJSCD, Fort Dix and Fort Jackson programs possess the following characteristics:

- o Task statements are not well defined.
- o Condition statements are either incompletely stated or not stated at all.
- o Standards statements are either nebulous or not stated at all.

At best these objectives indicate the broad content areas that should be addressed via training. For the most part, practice

activities necessary for supporting this training are not suggested or implied by these objectives.

The objectives for the Fort Benning program are in sharp contrast to those of the other programs. Most of the task statements are well written. Condition statements are provided in all cases and appear to be relatively comprehensive. In most cases, standards are clearly stated. Finally, the specific instructional content of the program and the specific practice activities required to support this training are readily derivable from the objectives.

Thus, of the four sets of BRM training objectives, those for the Fort Benning program are more satisfactorily written and designed than the objectives for the other BRM Test programs. Because of this, it is likely that the training defining the Fort Benning program was actually developed to a large degree directly from the objectives for this program. On the other hand because of the inherent inadequacies of the objectives supporting the other programs, it is likely that the training defining these programs was not directly derived from the respective training objectives for these programs. Instead, these objectives probably served to suggest broadly defined content areas for training. For these programs the actual details of training were likely developed using these broadly defined content areas as a basis and supplementing this guidance with expert judgement to identify specific instruction and practice activities for these programs.

TRAINING PRACTICES

The training practices employed during the implementation of a training program fall into the following categories: training techniques, training devices, training exercises, and training references. In this section of the report the practices characteristic of the BRM Test programs are contrasted.

Training Techniques. All of the BRM Test programs employed, the same techniques for conducting training: lectures, demonstrations, and practical exercises. In all the programs lectures and demonstrations are generally used in the initial stages of a training period to present instruction in selected knowledge and skills. Following this instruction, practical exercises are conducted to allow trainees the opportunity to practice the application of the knowledge and skills addressed earlier in the period. In general these techniques are employed in the same ways to support instruction and practice in content areas common to the different programs. For the remaining content areas, these techniques are used as dictated by the nature of the training.

Training Devices. Table A-15 lists the training devices used to support training in the four BRM Test programs. Of the four training devices and aids available to support BRM training, the ASUBJSCD and Fort Jackson programs employ all of these during the implementation of these programs, the Fort Dix program employs two of these (the M15 Sighting Device and the Shot Group Analysis Card), while the Fort Benning program employs only the Shot Group Analysis Card.

Table A-15

TRAINING DEVICES AND AIDS EMPLOYED TO SUPPORT BRM TRAINING IN
THE BRM TEST TRAINING PROGRAMS

Training Device/Aid	ASUBJSCD	Fort Benning	Fort Bliss	Fort Jackson
Visual Sighting Device	X		X	X
Paize Sighting Device	X			X
M16A1 Sighting Device	X			X
Shot Group Analysis Card	X		X	X

Training Exercises. Across all of the SRM programs the live-fire practical exercise is the most frequently used exercise employed to support training. As discussed above the nature of the particular live-fire exercises used to support training varies across programs in a non-systematic manner.

Across programs, there are also a number of non-firing practical exercises employed to support the acquisition of marksmanship fundamentals. The Transposition Exercise is employed in all of the training programs to support the acquisition of sight alignment and aiming skills. In addition to this exercise the Paige Sighting Device exercise is used for this purpose in the ASUBJSCD and Fort Jackson programs. Also for these programs practice in just sight alignment is supported by the M15 Sighting Device exercise. Finally, in the Fort Dix program the Aiming Bar exercise is used to support sight alignment and aiming practice in addition to the Transposition Exercise. Additionally, for this program the M15 Sighting Device exercise is used to support sight alignment practice.

In the Fort Benning program there is no specific provision for trigger squeeze practice. However for the other programs, specific provision is made for this practice. For the Fort Jackson program the "Ball-and-Dummy" and "Washer-and-Dime" exercises are used for this purpose. In the ASUBJSCD and Fort Dix programs, however, trigger squeeze practice is supported by only one of these exercises, the "Ball-and-Dummy" exercise.

Training References. Table A-16 lists the references employed to support training in the four BRM Test programs. Across all of the programs, FM 23-9 is the primary reference. As shown in Table A-16, the training phases for the programs which specifically break this out are all supported by the same Chapters in FM 23-9.

The only significant deviations with respect to training references occurs for the Night Rifle Firing phase of training. In two of the programs (ASUBJSCD and Fort Jackson programs) the FM 23-9 reference material is supplemented by other reference material.

Summary. An overview of the analysis of the program practices for the BRM Test program shows that for the most part the programs do not differ too much from each other with respect to these practices. When differences arise, they exist mainly for the training devices and training exercises characteristic of a particular program.

PROGRAM QUALITY CONTROL

Those means by which the consistency of program implementation is maintained and the competency of program graduates is guaranteed are referred to collectively as program quality control procedures. In this section of the report, these procedures and their use during the BRM Test are discussed.

Inter-Program Quality Control. The purpose of inter-program quality control procedures is to ensure the standardization of

Table A-16

REFERENCES USED DURING THE CONDUCT OF THE BWM TEST TRAINING PROGRAMS BY TRAINING PHASE

Training Phase	ASUMJNB	Fort Benning	Fort Dix	Fort Jackson
Orientation and General Training	FM 23-9, Chapter 2	FM 23-9, AF 305-43	FM 23-9, Chapter 2	FM 23-9, Chapter 2
Operator's Responsibility	FM 23-9, Chapter 3 and 4	FM 23-9, AF 305-43	FM 23-9, Chapters 3 and 4	FM 23-9, Chapters 3 and 4
Small Fire Preparation	FM 23-9, Chapters 5, 6, 8, and Appendix 7	FM 23-9, AF 305-43	FM 23-9, Chapters 3 and 5	FM 23-9, Chapters 5, 6, 8, and Appendix 7
Automatic Rifle Firing	FM 23-9, Chapter 7	FM 23-9, AF 305-43	FM 23-9, Chapter 7	FM 23-9, Chapter 7
Light Rifle Firing	FM 23-9, Chapters 7 and 9 FM 23-71, Chapter 7 FM 21-75, Chapter 2	FM 23-9, AF 305-43	FM 23-9, Chapter 7	FM 23-9, Chapter 9 FM 21-75, Chapter 2

program implementation across multiple training sites. The intent of standardization is to guarantee that the same methodology and resources are employed in the same way across sites during the conduct of a training program. At a minimum, standardization requires the availability of written materials that explicitly define the methodology, resources, and manner of program conduct. Further, it requires that the personnel responsible for placing the program into operation at different sites implement the program exactly as specified in the program's written guidance.

The BRM training programs implemented during the BRM Test were defined by documentation indicating the training and evaluation activities for the programs and the resources required for their conduct. This documentation served, in part, as the data base for the analyses presented in this report. Because no data were collected during the BRM Test indicating the degree to which program documentation was followed during the test, it is not possible to directly determine the extent to which the programs were actually implemented according to their respective guidance. However, it must be assumed that this documentation was followed at least in part during the conduct of the test. Otherwise, the specific kinds of firing data collected during the testing would not have been available for collection.

It is recommended for future tests of this nature, that some provisions be made to collect data that indicate the exact way to which training is conducted. In this way, analysis can be conducted to determine the degree to which the training has been

implemented in accordance with its documentation. At a minimum, data should be collected for each iteration of training. It should describe the actual events occurring at given points during the training and evaluation sequence. Analysis and comparison of this information with the documentation for the program will then indicate clearly how the program was conducted in accordance with its supporting documentation.

Intra-Program Quality Control. The purpose of intra-program quality control procedures is to assess the adequacy of the training completed by a trainee during the conduct of a training program. This assessment assumes that the failure to learn on the part of the trainee is based on a possible weakness in the program, rather than trainee ability. Thus, assessment in this respect is appropriately based on the measurement of the trainee success rate for the various training phases defining the program, as well as the success rate for the entire program. Unacceptable success rates may reflect problems in the way instruction and practice are implemented, inadequate instructor proficiency, inadequate performance measures, and the existence of conditions that lead to low trainee morale.

All of the programs evaluated during the BRM Test provided for performance checks at the end of selected instructional periods and instructor critiques of ongoing performance. These assessments were usually based on live-firing performance. Further, in all of the programs, based on the results of exercises like Record Firing, trainees who failed to meet pre-established standards were given

remedial training and then retested. Continued failure following the retesting could result in recycling the trainee to an earlier point in the training program, unless the success requirement was waived by the local commander.

Inspection of the documentation for the BRM Test programs did not yield any evidence of other intra-program quality control procedures. It must be assumed, therefore, if other means existed, that these were employed on an informal, rather than a formal basis. For this reason, it is recommended for future tests of this type, that some attention be paid to intra-program procedures and that steps be taken to document the use of these.

Job-Referencing Quality Control Procedures. The quality control procedures to be discussed under the general heading of job-referencing are of two types: those designed to ensure that the trainees are meeting field commanders' expectations concerning proficiency levels and skills and those designed to ensure that the skills taught during training are those really needed on the job (in the case of BRM, really needed in combat).

This latter type of quality control procedure could not be directly assessed during the BRM Test. It should be noted that no formal system exists within the Army by which BRM program graduates are monitored on the job or by which field commanders' comments on BRM graduate quality are obtained and evaluated. None of the programs showed evidence of incorporation procedures for such an effort and thus, it can be assumed that none exist.

With respect to efforts to relate standards and conditions to

job (combat) requirements, no rationale could be found by Mellonics to support the idea that the four BRM programs had been explicitly job referenced. As discussed in the section on Training References, the four programs were based essentially on the same references. There is no evidence that variations in the training requirements presented in these references reflect an explicit analysis of combat requirements. Therefore, it must be concluded that no job-referencing quality control procedures were used in any of the four programs beyond the use of experts in constructing the programs.

APPENDIX B

PROGRAM DESCRIPTIONS

PROGRAM DESCRIPTIONS

Training programs are designed to provide instruction in selected (but usually related) topics and opportunities to practice the application of this information. In addition to instruction and practice, training programs also provide for some form of evaluation. This evaluation is designed to assess proficiency with respect to the instruction and practice completed prior to the evaluation. The nature and organization of the instruction, practice, and evaluation activities characteristic of a training program, in part, define that program. For this reason, a description of a training program should at least include a description of these activities and their organization.

However, a training program description should also include a listing of the training objectives developed to support the program, and a specification of the training practices characteristic of the program. Inclusion of this information is appropriate since the objectives drive the selection of program content and training practices define the means by which training is actually implemented.

In this section of the report descriptions of the four BRM Test programs are presented. These descriptions are written in terms of the basic requirements for a program description (as discussed above). For each program, the description is organized as follows:

- o First, the nature and organization of the instruction, practice, and evaluation activities characteristic of the program are described.
- o Second, the training objectives developed to support the program are listed.
- o Third, the training practices characteristic of the program are identified and described.

THE ASUBJSCD BRM PROGRAM (BRM TEST VERSION)

Description of Program Training and Evaluation Activities.

Program Organization. The ASUBJSCD program (BRM Test version) is divided into 21 periods: 18 involving the completion of instruction and practice activities and 3 devoted to the completion of evaluation activities (see Table B-1). The implementation of the total program requires 77 hours and an aggregate expenditure of 720 rounds of ammunition. The periods of training and evaluation are structured into nine phases:

- o Orientation and Mechanical Training
- o Preparatory Marksmanship
- o Record Fire Preparation I
- o Day Record Fire I Evaluation
- o Record Fire Preparation II
- o Day Record Fire II Evaluation
- o Automatic Rifle Firing

Table B-1

PERIODS DEFINING AND DISTRIBUTION OF PROGRAM HOURS AND ROUNDS OF AMMUNITION ACROSS PERIODS:
ARMY SUBJECT SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Period	Period Title	Program Hours	Rounds of Ammunition
1	Orientation and Mechanical Training	4	0
2	Introduction to Marksmanship	3	6
3	Preparatory Marksmanship (1)	5	9
4	Preparatory Marksmanship (2)	6	42
5	Preparatory Marksmanship (3)	4	18
6	Preparatory Marksmanship (4)	4	18
7	Introduction to Field Firing	4	36
8	Field Firing (1)	4	36
9	Field Firing (2)	4	36
10	Field Firing (3)	4	40
11	Record Fire I	5	40
12	Field Firing (4)	4	35
13	Field Firing (5)	4	35
14	Hasty Aimed Fire Training	2	40
15	Field Firing (6)	4	35
16	Record Fire II	5	40
17	Automatic Rifle Field Firing (1)	2	36
18	Automatic Rifle Field Firing (2)	1	54
19	Night Fire Training - Night	3	32
20	Night Fire Training - Daytime	2	60
21	Night Record Fire	3	72
Total		77 Hours	720 Rounds

- o Night Rifle Firing.

- o Night Record Fire Evaluation

Table B-2 shows the periods included in each phase and the distribution of hours and rounds of ammunition across each of the phases. Inspection of this table shows that the majority of hours and rounds allocated for this program are expended during Preparatory Marksmanship training, Record Fire Preparation training, and the Record Fire evaluation phases. These are the phases designed to teach and evaluate the handling and firing of the M16A1 rifle.

Program phases are implemented sequentially. Orientation and Mechanical Training and Preparatory Marksmanship instruction are requisite to Record Fire Preparation I instruction and the Record Fire I evaluation. The Record Fire I evaluation must be satisfactorily completed before Record Fire Preparation II training is initiated. Record Fire Preparation II training is requisite to the Record Fire II evaluation. Automatic Rifle Firing and Night Rifle Firing instruction and the Night Record Fire evaluation are initiated and completed, in that order, once the Day Record Fire II evaluation has been successfully completed. Implicit in the program's structure is the notion that the successful completion of daylight rifle instruction must be achieved in order for trainees to benefit from Automatic Rifle Firing and Night Rifle Firing training.

Table B-2

PROGRAM PERIODS INCLUDED IN AND DISTRIBUTION OF HOURS AND ROUNDS ACROSS THE TRAINING AND EVALUATION PHASES DEFINING THE ARMY SUBJECT SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Phase	Periods Included		Hours Allocated		Rounds Allocated	
	In Phase	To Phase	To Phase	To Phase	To Phase	To Phase
Training						
Orientation and Mechanical Training	1	4			0	
Preparatory Marksmanship	2,3,4,5,6	22			93	
Record Fire Preparation I	7,8,9,10	16			148	
Record Fire Preparation II	12,13,14,15	14			145	
Automatic Rifle Firing	17,18	3			90	
Night Rifle Firing	19,20	5			92	
Total Training			18 Periods	64 Hours		568 Rounds
Evaluation						
Day Record Fire I	11	5			40	
Day Record Fire II	16	5			40	
Night Record Fire	21	3			72	
Total Evaluation			3 Periods	13 Hours		152 Rounds
Total Program			21 Periods	77 Hours		720 Rounds

BRM qualification occurs once the Day and Night Record Fire evaluations have all been successfully completed.

Orientation and Mechanical Training. This four-hour instructional phase is conducted in a classroom. Trainees are briefed on the history of the rifle, the nature of rifle marksmanship, and the role of the infantryman in combat. This briefing is followed by a presentation of topics to be covered during the subsequent phases. Next, instruction in the mechanical operation and care of the M16A1 rifle is conducted. The ASUBJSCD (BRM Test version) addresses the following content areas:

- | | |
|----------------------|----------------------------|
| o Rifle Nomenclature | o Immediate Action |
| o Clearing the Rifle | o Preventative Maintenance |
| o Rifle Disassembly | o Loading the Rifle |
| o Rifle Assembly | o Unloading the Rifle |
| o Function Check | |

Also a conference on hearing conservation is conducted during this period.

Following this instruction, trainees complete a performance test designed to evaluate their ability to correctly disassemble and reassemble the rifle. "Passing" requires completion of the disassembly and reassembly tasks within three minutes.

Preparatory Marksmanship. This phase is conducted on a 25-meter range. It involves instruction in the application of the following rifle marksmanship fundamentals:

- o How to aim the rifle
- o How to hold the rifle
- o Assumption of a firing position
- o Trigger control
- o The act of followthrough
- o Sight correction

Twenty-two hours and 93 rounds distributed across five instructional periods (see Table B-2) are allocated for Preparatory Marksmanship Training. Successful completion of this phase occurs once the trainee is able to battlesight zero the M16A1 rifle.

Introduction to Marksmanship. During this period, trainees receive instruction in the principles of aiming and the effect of sight alignment and aiming point placement on shot group size. Additionally, they receive instruction in the use of the M16, M15, and Paige sighting devices and the conduct of the Transposition Exercise. Next, the trainees practice sight alignment and aiming using the above sighting devices. Following this, they complete the Transposition Exercise. Also, each trainee fires two, three-round shot groups from the prone supported position at stationary 25-meter targets. Following each three-round firing, shot groups are inspected by the trainee and instructor to determine their closeness (compactness).

Using information printed on the Shot Group Analysis Card and judgmental analysis, the instructor indicates the changes that the trainee should make in his firing technique to increase shot group compactness.

Preparatory Marksmanship (1). In this period, trainees review the procedures for immediate action and the principles of aiming. This review is followed by instruction in the eight steady-hold factors that must be considered when sighting and firing the M16A1 rifle. This training is followed by instruction in the act of followthrough, the principles of sight changes, and their effect on shot group compactness. Additionally, the prone supported firing position is reviewed and demonstrated. Next, trainees practice assuming the prone supported position. They also practice sight alignment using the M15, M16, and Paige sighting devices and through the conduct of the Transposition Exercise. Then trainees practice proper trigger squeeze. Finally, the trainees fire three, three-round shot groups from the prone supported position at 25-meter targets. As before, using the Shot Group Analysis Card, the instructor assists the trainee in analyzing the results of his firing (shot groups). The instructor makes appropriate suggestions to the trainee for improving his firing technique, i.e., increasing the compactness of his shot groups.

Preparatory Marksmanship (2). In this period, trainees review the immediate action procedure, principles of sight adjustment and aiming and the act of followthrough. Trainees also review and practice assuming the prone supported position. Following the review, training designed to prepare the soldier to battlesight

zero his weapon is initiated. First, the principles of obtaining battlesight zero are presented. Following this, trainees alternate between firing to obtain battlesight zero (a series of 14, three-round shot groups fired from the prone supported position) and sighting practice using the M15, M16, and Paige sighting devices. Concurrent with sighting practice, the trainees practice proper trigger squeeze. As needed, trainees complete the "Ball and Dummy" exercise. Errors in firing technique identified during the completion of this exercise are noted and corrective actions are suggested to the trainee.

Preparatory Marksmanship (3). During this period, trainees review the factors affecting the steady-hold of the rifle, and the act of followthrough. Additionally, they receive an explanation and demonstration of the foxhole and prone unsupported firing positions. Afterwards, they practice assuming those positions. Next, from each of these positions, three, three-round shot groups are fired. Trainees continue sighting practice (via completion of the transposition exercise) and firing to obtain battlesight zero (as necessary). They also continue to practice the application of constant pressure during the act of trigger squeezing via the "Ball and Dummy" exercise.

Preparatory Marksmanship (4). During this period, trainees review the principles of aiming, of steady-hold factors, of sight adjustment, and of obtaining battlesight zero and the effects of sight changes on firing accuracy. The assumption

of the foxhole and prone unsupported firing positions is also reviewed. Next, the kneeling unsupported, the kneeling supported, and standing firing positions are explained and demonstrated. Afterwards, the trainees practice assuming those positions. As required, trainees continue to fire to obtain battlesight zero. Eighteen rounds (fired in six, three-round shot groups) are allocated for this practical exercise. Finally, they continue to practice the proper way of squeezing the trigger via the "Ball and Dummy" exercise.

Record Fire Preparation I. This phase of BRM training consists of 16 hours of instruction to which 148 rounds of ammunition are allocated as shown in Table . The 16 hours are divided into four, four-hour instructional periods each conducted on Field Fire ranges having the capacity to present both single and multiple pop-up targets at ranges out to 300 meters for time periods ranging from five to twenty seconds. Of the four instructional periods defining this phase, the first introduces the trainee to field firing via a series of relatively simple firing exercises involving the engagement of single targets primarily located at short (75-meter) target ranges. The remaining three periods are designed to teach the trainee (on an incremental basis) the techniques of engaging relatively more difficult targets.

Introduction to Field Firing. During this Preparatory Record Fire period, trainees receive instruction in target engagement and the effects of wind on rifle firing. They also

review the procedure for immediate action. Next, they receive a briefing designed to acquaint them with the Field Fire range (the facilities, targets, and scoring systems). Following this, the trainees complete a 36-round live-fire exercise: 18 rounds are fired from both the foxhole and the prone supported firing positions. The distribution of these firings by firing position and target range is presented in Table B-3. All of these firings are conducted against single targets. Further, the majority of the firings involve the engagement of short range (75-meter) targets. In addition, target detection and range estimation training is initiated during this period. Also, trainees who did not achieve battlesight zero during the final period of the Preparatory Marksmanship training phase complete a firing exercise designed to correct this deficiency.

Field Firing (1). During this period, trainees review the prone unsupported, the kneeling supported, the kneeling unsupported and the standing firing positions. Following this review, they complete a 36-round live-fire exercise involving the above firing positions: 12 rounds are fired each from the prone unsupported and the kneeling supported positions, while 6 rounds are fired each from the kneeling unsupported and the standing positions. The distribution of these firings by firing position and target range is presented in Table B-4. Again all target engagements involve only single targets. Further, most of the targets fired on are located at either 75- or 175-meter target ranges. As required, target detection and range estimation training is conducted during this period.

Table B-3

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION

AND TARGET RANGE: INTRODUCTION TO FIELD FIRING, ARMY SUBJECT

SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Firing Position	Target Range (Meters)		
	75	175	300
Foxhole	13	4	1
Prone Supported	12	5	1

Table B-4

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION

AND TARGET RANGE: FIELD FIRING (1), ARMY SUBJECT SCHEDULE BRM

PROGRAM (BRM TEST VERSION)

Firing Position	Target Range (Meters)		
	75	175	300
Prone Unsupported	4	6	2
Kneeling Supported	5	5	2
Kneeling Unsupported	2	3	1
Standing	4	2	-

Field Firing (2). In this period, trainees initiate instruction and firing practice in the engagement of multiple targets. First, they review the center-of-target method of engagement. Next they receive instruction in the fundamentals of engaging multiple targets. Afterwards, they fire 18 rounds from the foxhole and prone unsupported positions, primarily at multiple targets. (See Table B-5).

Field Firing (3). This session begins with a review of marksmanship fundamentals. Next, trainees complete a 40-round live-fire exercise which involves the engagement of approximately equal numbers of single and multiple targets (See Table B-6). All firings are conducted from either the foxhole or prone unsupported firing positions. The advantage of the exercise is that it provides the trainees with an opportunity to engage both single and multiple targets under conditions similar to those occurring during the initial Record Fire evaluation which is conducted during the following period.

Day Record Fire I Evaluation. This evaluation is the first of three designed to measure the marksmanship proficiency of the trainee. The score resulting from the completion of this evaluation added together with the scores from the other Record Fire evaluations serve as the basis for qualifying a trainee in the use of the M16A1 rifle.

The specific objective of this phase is two-fold.

Table B-5

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION,
 TARGET TYPE, AND TARGET RANGE: FIELD FIRING (2), ARMY SUBJECT
 SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Firing Position	Target Type	Target Range (Meters)		
		75	175	300
Foxhole	Single	-	-	-
	Multiple	6	6	6
Prone Unsupported	Single	-	1	-
	Multiple	7	6	4

Table B-6

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION,
 TARGET TYPE, AND TARGET RANGE: FIELD FIRING (3), ARMY SUBJECT
 SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Firing Position	Target Type	Target Range (Meters)		
		75	175	300
Foxhole	Single	3	5	2
	Multiple	4	4	2
Prone Unsupported	Single	3	4	3
	Multiple	3	4	3

First, it results in the first of three objective measures of the trainee's ability to use the M16A1 rifle to engage combat-like targets. Second, it provides marksmanship instructor personnel with an opportunity to identify those trainees who should receive remedial training before completing additionally scheduled training activities. This evaluation is conducted on a Record Fire range and requires 5 hours of program time for completion. It consists of firing of the exercise outlined in Table B-7. The number of target hits achieved during the completion of the exercise constitutes the trainee's score.

Based on results of the Record Firing, one of two events occurs. If the trainee's Record Fire score is greater than or equal to 20, he is allowed to proceed to the next program phase, Record Fire Preparation II. If his score is less than 20 hits, he is not allowed to proceed with additional training until the Record Fire Evaluation is refired with a score of 20 hits or better. During the BRM Test, the number of refires was held to two. Trainees failing to achieve 20 hits after two refires were either recycled to an earlier point in the training program or the 20 hit criterion was waived by the local commander. In the latter case, the trainees continued on to the Record Fire Preparation II phase of the program.

Record Fire Preparation II. This program phase is initiated after the Record Fire I Evaluation has been completed. A total of 14 hours of training and 145 rounds of ammunition distributed across four instructional periods are allocated for this phase

Table B-7

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE ATTUNITION BY FIRING POSITION, TARGET TYPE,

AND TARGET RANGE: DAY RECORD FIRE I EVALUATION, ARMY SUBJECT

SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Firing Position	Target Type	Target Range		
		Short ^a	Medium ^b	Long ^c
Foxhole	Single	3	5	3
	Multiple	4	2	3
Prone Unsupported	Single	4	4	4
	Multiple	3	3	2

^a 50 or 100 meter target ranges

^b 150 or 200 meter target ranges

^c 250 or 300 meter target ranges

(See Table B-2). Two, four-hour Field Fire periods, a two-hour hasty aimed fire training period, and an additional four-hour Field Fire period define the training for this phase.

Field Firing (4). During this period, instruction for moving with a loaded rifle, rapidly reloading the rifle, and quickly assuming a firing position while advancing toward a target is presented. Next, a 35-round live-fire exercise is completed during which trainees move with their loaded rifles, rapidly reload their rifles, and quickly assume a firing position (prone unsupported, kneeling supported, kneeling unsupported, and standing positions) while advancing toward a target. Seventeen of the targets engaged during this exercise are single targets, while the remaining eighteen are members of multiple target configurations. The distribution of these targets by firing position, target type, and target range are presented in Table B-8. As was true for previous Field Fire exercises, these targets appear for durations of between 5 and 20 seconds.

Field Firing (5). In this period, trainees complete another 35-round live-fire exercise which also requires them to move with a loaded rifle, rapidly reload their rifle, and assume a firing position while advancing toward a target. The distribution of firings by firing position, type of target, and target range are presented in Table B-9. As shown in this table, most of the engagements involve multiple targets. This and the

Table B-8

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION,
 TARGET TYPE, AND TARGET RANGE: FIELD FIRING (4), ARMY SUBJECT
 SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Firing Position	Target Type	Target Range (Meters)		
		75	175	300
Prone Unsupported	Single	1	2	2
	Multiple	3	3	3
Kneeling Unsupported	Single	2	2	1
	Multiple	2	2	-
Kneeling Supported	Single	1	2	1
	Multiple	1	2	2
Standing	Single	3	-	-
	Multiple	-	-	-

Table B-9

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION,
 TARGET TYPE, AND TARGET RANGE: FIELD FIRING (5) AND FIELD FIRING (6),
 ARMY SUBJECT SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Firing Position	Target Type	Target Range (Meters)		
		75	175	300
Prone Unsupported	Single	-	-	-
	Multiple	4	4	4
Kneeling Unsupported	Single	-	-	-
	Multiple	3	4	4
Kneeling Supported	Single	-	-	-
	Multiple	3	4	3
Standing	Single	2	-	-
	Multiple	-	-	-

previous period of instruction are designed to provide the trainees with the knowledge and skills required to engage briefly appearing targets from the advance.

Hasty Aimed Fire Training. During this period, instruction in applying hasty aimed fire against targets located at a range of 25 meters is completed. First, trainees are instructed in principles of hasty aimed fire and the method of engaging targets with hasty aimed fire. Next, they complete a 40-round firing exercise in which 25- and 30-meter targets are engaged using the hasty aimed fire technique (See Table B-10). The purpose of this training is to teach the trainee a firing technique that can be used to engage targets when insufficient time is available for using the rifle sight to aim at a target e.g. the engagement of short range, fleeting targets. However, this training does not logically follow or complement previous instruction in this program phase, either in terms of the technique of fire or the targets engaged. In Mellonics' opinion it would be more appropriate to implement this instruction as the first or last period in the present training sequence to prevent an interruption of the instruction and practice in firing from the advance.

Field Firing (6). In this period, trainees complete a review of instruction received during the first two periods of this phase. Additionally, they complete another 35-round firing exercise designed to provide practice in moving with a loaded weapon, rapidly reloading the weapon, and assuming a firing position from the advance. The target presentations for

Table B-10

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY ENGAGEMENT TRIAL, FIRING MODE,

AND TARGET RANGE: HASTY AIMED FIRE TRAINING, ARMY SUBJECT

SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Engagement Trial	Firing Mode	Target Range (Meters)	Number of Rounds Fired
1-10	Sights Taped	15	10
11-20	Sights Taped	30	10
21-30	Sights Not Taped	15	10
31-40	Sights Not Taped	30	10

this exercise follow the same distribution of single and multiple targets as during Field Fire 5 in this phase (See Table E-9).

Day Record Fire II Evaluation. The Record Fire II evaluation is also conducted on a Record Fire range. It, too, consists of a 40-round, live-fire exercise (See Table B-11). Trainees fire ten rounds from the foxhole position at three single and seven multiple targets. Next, 30 rounds are fired at four single targets and 26 multiple targets either from the prone unsupported or kneeling unsupported positions. Target distances used in this exercise range from 25 to 300 meters. To successfully complete this exercise, the trainee must hit a sufficient number of targets such that when his Record Fire I score is added to his Record Fire II score, the total equals or exceeds 47. If this total is less than 47, the trainee must refire the Record Fire II exercise on a contingency basis. During the BRM test, trainees were permitted, at most, two refires. Those unable to achieve the qualification score of 47 after two refires were either recycled to an earlier point in the training sequence, or the minimum requirement was waived by the local commander. In the latter case, trainees proceeded to Automatic Rifle Firing Training.

Automatic Rifle Firing. Two training sessions conducted on a Modified Field Fire Range define this program phase. A total of 3 hours of program time and 90 rounds of ammunition are allocated for this phase of training.

Table B-11

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION, TARGET TYPE,

AND TARGET RANGE: DAY RECORD FIRE II EVALUATION, ARMY SUBJECT

SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Firing Position	Target Type	Target Range		
		Short ^a	Medium ^b	Long ^c
Foxhole	Single	-	1	2
	Multiple	2	3	2
Prone Unsupported	Single	-	-	2
	Multiple	4	8	6
Kneeling Unsupported	Single	2	-	-
	Multiple	8	-	-

^a 25, 50, or 100 meter target ranges

^b 150 or 200 meter target ranges

^c 250 or 300 meter target ranges

Automatic Rifle Field Firing (1). For this training, trainees receive two hours of instruction (via lecture and demonstration) in the fundamentals of automatic fire, rapid magazine changing, the center-of-target engagement method for automatic fire, the primary firing position (bipod-supported prone position), the engagement of area targets, techniques of fire distribution, and range determination. Following this instruction, trainees practice estimating range to selected targets. Next, they complete a 36-round, live-fire exercise which is fired from the bipod-supported prone position (See Table B-12).

Automatic Rifle Field Firing (2). During this one-hour period, trainees review the automatic rifle fire instruction received previously. Afterwards, they complete a 54-round, live-fire exercise which is also fired from the bipod-supported prone position (See Table B-13).

Night Rifle Firing. Night Rifle Firing Training consists of 5 hours of instruction: one, three-hour period and one, two-hour period. This training is conducted on a Night Fire range. A total of 92 rounds of ammunition is allocated for practice in this phase.

Night Fire Training - Night. This is a three hour period of instruction. Trainees receive a lecture on the conduct of night fire in combat. This is followed by a lecture on the principles of night vision. Next, trainees complete a 32-round, live-fire exercise using both the semiautomatic and automatic modes of the M16A1 rifle (See Table B-14).

Table B-12

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING PHASE, TARGET TYPE,

AND TARGET RANGE: AUTOMATIC RIFLE FIELD FIRING (1), ARMY

SUBJECT SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Firing Phase	Target Type	Target Range (Meters)	Number of Rounds Fired
1	Single	75	1, 3-Round Burst
2	Double	175	3, 3-Round Bursts
3	Double	175	3, 3-Round Bursts
4	Single	75	1, 3-Round Burst
5	Double	175	3, 3-Round Bursts
6	Single	75	1, 3-Round Burst

Table B-13

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING PHASE, TARGET TYPE,
AND TARGET RANGE: AUTOMATIC RIFLE FIELD FIRING (2), ARMY

SUBJECT SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Firing Phase	Target Type	Target Range (Meters)	Number of Rounds Fired
1	Single	75	1, 3-Round Burst
2	Single and Double	75/175	4, 3-Round Bursts
3	Single	75	1, 3-Round Burst
4	Single and Double	75/175	4, 3-Round Bursts
5	Single and Double	75/175	4, 3 Round Bursts
6	Quadruple	300	4, 3 Round Bursts

Table B-14

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING PHASE, FIRING MODE,

AND TARGET RANGE: NIGHT FIRE TRAINING-NIGHT, ARMY SUBJECT SCHEDULE

BRM PROGRAM (BRM TEST VERSIONS)

Firing Phase	Firing Mode	Target Range (Meters)	Number of Rounds Fired
1	Semiautomatic	25	10
2	Automatic	25	2, 3-Round Bursts
3	Semiautomatic	50	10
4	Automatic	50	2, 3-Round Bursts

Night Fire Training - Daytime. This is a two hour period, conducted during the daytime. During this session, trainees receive instruction in the night fire pointing technique. Additionally, the principles of automatic fire are reviewed. Afterwards, trainees complete a 60-round live-fire exercise firing in the automatic mode (See Table B-15). This exercise is conducted to prepare them for firing the Night Record Fire evaluation.

Night Record Fire Evaluation. Prior to this evaluation, trainees review the principles of night vision and receive a demonstration of the night fire pointing technique. Next, the Night Record Fire evaluation is conducted. During this evaluation, each trainee fires 72 rounds as shown in Table B-16.

To successfully complete this exercise, the total number of hits achieved must, with the total of the Record Fires I and II hits, sum to a number greater than or equal to 54. If this sum is less than 54, the Night Record Fire evaluation must be refired until qualification is achieved, or until the local commander waives the requirement.

Training Objectives. Specific training objectives could not be identified from the available documentation for the ASUBJSCD BRM Program (BRM Test version). Because this program is a derivative of the ASUBJSCD 23-72 program, it is reasonable to assume that the training objectives for the ASUBJSCD 23-72 program are the same as those for the ASUBJSCD BRM program (BRM Test version) for those training activities common to both programs. For this reason, the ASUBJSCD 23-72 BRM program

Table B-15

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING PHASE, FIRING MODE,
AND TARGET RANGE: NIGHT FIRE TRAINING-DAYTIME, ARMY SUBJECT
SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Firing Phase	Firing Mode	Target Range (Meters)	Number of Rounds Fired
1	Automatic	25	10, 3-Round Bursts
2	Automatic	50	10, 3-Round Bursts

Table B-16

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING PHASE, FIRING MODE,

AND TARGET RANGE: NIGHT RECORD FIRE EVALUATION, ARMY SUBJECT SCHEDULE

BRM PROGRAM (BRM TEST VERSION)

Firing Phase	Firing Mode	Target Range (Meters)	Number of Rounds Fired
1	Semiautomatic	25	6
2	Automatic ^a	25	10, 3-Round Bursts
3	Semiautomatic	50	6
4	Automatic ^a	50	10, 3-Round Bursts

^a Only the firings conducted in the automatic mode are counted in determining the Night Record Fire score.

was used as the source for identifying the training objectives for the ASUBJSCD BRM program (BRM Test version). Tables B-17 through B-22 present the objectives identified from an examination of the ASUBJSCD 23-72 BRM program.

Program Training Practices. Program training practices consist of the training techniques, devices, exercises, and references required for the conduct of training (both instruction and practice activities). In this section of the report, the practices characteristic of the ASUBJSCD BRM program (BRM Test version) are identified and discussed. These were derived from an examination of the documentation for this program and from information compiled during interviews with personnel connected with the conduct of the Fort Jackson BRM Test.

Training Techniques. Lectures, demonstrations, and practical exercises represent the training techniques used to conduct training in this program. Lectures are relatively short verbal presentations presented by the training staff to audiences of trainees. During these presentations, trainee participation is limited to asking questions about subject matter that is unclear or to answering questions posed by the lecturer. In this program, lectures lasting from five to fifteen minutes were initiated at the first of instructional periods to present and explain the subject matter to be addressed during the period.

Demonstrations are a means of presenting or communicating information about a topic in which a trainer shows the trainees what actions they are supposed to take and the appropriate way

Table B-17

TRAINING OBJECTIVES FOR THE ORIENTATION AND MECHANICAL TRAINING PHASE: ARMY SUBJECT SCHEDULE RM PROGRAM (BPM TEST VERSION)

Training Objective

Task: Disassemble and assemble the M16A1 rifle.

Condition: Not stated.

Training Standard: Correctly disassemble and assemble the M16A1 rifle within three minutes.

Intermediate Training Objectives

Intermediate Training Objective I

Task: Know the maximum effective range, the cyclic rate of fire, the sustained rate of fire, the weight, and the types of ammunition for the M16A1 rifle.

Condition: Not stated.

Training Standard: Correctly state the maximum effective range, the cyclic rate of fire, the sustained rate of fire, the weight, and the type of ammunition for the M16A1 rifle.

Intermediate Training Objective II

Task: Identify all parts of the M16A1 rifle.

Condition: Not stated.

Training Standard: Correctly identify all of the parts of the M16A1 rifle.

Intermediate Training Objective III

Task: Explain the cycle of functioning of the M16A1 rifle.

(continued)

Table B-17 (concluded)

Condition:	Not stated.
Training Standard:	Correctly explain the cycle of functioning of the M16A1 rifle.
Intermediate Training Objective IV	
Task:	Perform the immediate action procedure for the M16A1 rifle.
Condition:	Not stated.
Training Standard:	Correctly perform the immediate action procedure for the M16A1 rifle.
Intermediate Training Objective V	
Task:	Clean and lubricate the M16A1 rifle.
Condition:	Not stated.
Training Standard:	Correctly clean and lubricate the M16A1 rifle.

Table B-18

TRAINING OBJECTIVES FOR THE PREPARATORY MARKSMANSHIP PHASE: ARMY SUBJECT SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Training Objective

Task: Adjust the M16A1 rifle sights in order to move the strike of the M16A1 round to a desired point on a 25-meter target.

Condition: Not stated.

Training Standard: Correctly adjust the sights of the M16A1 rifle so that the strike of the M16A1 round is moved to a desired point on a 25-meter target.

Intermediate Training Objectives

Intermediate Training Objective I

Task: Perform all actions required for the safe conduct of a live-fire exercise.

Condition: Not stated.

Training Standard: Correctly perform all actions for the safe conduct of a live-fire exercise IAW AR 195-43 and local safety regulations.

Intermediate Training Objective II

Task: Obtain a good sight picture and apply the steady-hold factors while assuming the prone supported firing position.

Condition: Not stated.

Training Standard: Correctly align the M16A1 sights with a target to obtain a good sight picture and properly apply the steady-hold factors while assuming the prone supported firing position.

Intermediate Training Objective III

Task: Apply the proper sighting techniques and use the steady-hold factors while firing from the prone supported firing position.

(continued)

Table A-16 (continued)

Condition:	Not stated.
Training Standard:	Correctly apply the proper sighting techniques and correctly utilize the steady-hold factors while firing from the prone supported firing position.
Intermediate Training Objective IV	
Task:	Obtain a good sight picture and apply the steady-hold factors while assuming the foxhole firing position.
Condition:	Not stated.
Training Standard:	Correctly align the M16A1 sights with a target to obtain a good sight picture and properly apply the steady-hold factors while assuming the foxhole firing position.
Intermediate Training Objective V	
Task:	Obtain a good sight picture and apply the steady-hold factors while assuming the prone unsupported firing position.
Condition:	Not stated.
Training Standard:	Correctly align the M16A1 sights with a target to obtain a good sight picture and properly apply the steady-hold factors while assuming the prone unsupported firing position.
Intermediate Training Objective VI	
Task:	Obtain a good sight picture and apply the steady-hold factors while assuming the kneeling supported, kneeling unsupported, and standing firing positions.
Condition:	Not stated.
Training Standard:	Correctly align the M16A1 sights with a target to obtain a good sight picture and properly apply the steady-hold factors while assuming the kneeling supported, kneeling unsupported, and standing firing positions.
Intermediate Training Objective VII	
Task:	Apply the proper sighting techniques and use the steady-hold factors while firing from the prone unsupported and foxhole firing positions.
Condition:	Not stated.

(Continued)

Table B-18 (concluded)

Training Standard:	Correctly apply the proper sighting techniques and correctly utilize the steady-hold factors while firing from the prone unsupported and foxhole firing positions.
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Table B-19

TRAINING OBJECTIVES FOR THE RECORD FIRE PREPARATION I PHASE: ARMY SUBJECT SCHEDULE BRY PROGRAM (BRM EST VERSION)

Training Objectives

Training Objective I

Task: Apply the integrated act of shooting to engage field targets at various ranges from the prone unsupported, prone supported, foxhole, kneeling unsupported, kneeling supported, and standing firing positions.

Condition: Not stated.

Training Standard: Correctly apply the integrated act of shooting to engage field targets at various ranges from the prone unsupported, prone supported, foxhole, kneeling unsupported, kneeling supported, and standing firing positions.

Training Objective II

Task: Locate, mark, and determine the range to single, stationary targets.

Condition: Not stated.

Training Standard: Accurately locate, mark, and determine the range to single, stationary targets.

Training Objective III

Task: Use the center-of-target aiming technique to engage field targets at all ranges.

Condition: Not stated.

Training Standard: Correctly apply the center-of-target aiming technique to engage field targets at all ranges.

Table B-20

TRAINING OBJECTIVES FOR THE RECORD FIRE PREPARATION II PHASE: ARMY SUBJECT SCHEDULE BSM PROGRAM (BSM TEST VERSION)

Training Objectives

Training Objective I

Task: Apply the integrated art of shooting to engage field targets at various ranges from the prone unsupported, kneeling unsupported, kneeling supported, and standing firing positions.

Condition: Not Stated.

Training Standard: Correctly apply the integrated art of shooting to engage field targets at various ranges from the prone unsupported, kneeling unsupported, kneeling supported, and standing firing positions.

Training Objective II

Task: Assume the firing position for and apply the techniques of quick fire to accurately engage targets with the M16A1 rifle.

Condition: Not stated.

Training Standard: Correctly assume the firing position for and apply the techniques for quick fire to accurately engage targets with the M16A1 rifle.

Training Objective III

Task: Assume firing positions while advancing and engage surprise targets.

Condition: Not stated.

Training Standard: Correctly assume firing positions while advancing and engage surprise targets.

Table B-21

TRAINING OBJECTIVES FOR THE AUTOMATIC RIFLE FIRING PHASE: ARMY SUBJECT SCHEDULE BHM PROGRAM (ARM TEST VERSION)

Training Objective

Task: Engage targets with automatic fire from the bipod-supported prone firing position.

Condition: Not stated.

Training Standard: Correctly apply the fundamentals of automatic rifle marksmanship to engage targets with automatic fire from the bipod-supported prone firing position.

Intermediate Training Objective

Task: Know the fundamentals of rapid magazine changing, three-round bursts, center-of-target engagement method, primary firing positions, area target engagement, and fire distribution.

Condition: Not stated.

Training Standard: Correctly apply the fundamentals of magazine changing, three-round bursts, center-of-target engagement method, primary firing positions, area target engagement, and fire distribution.

Table B-22

TRAINING OBJECTIVES FOR THE NIGHT RIFLE FIRING PHASE: ARMY SUBJECT SCHEDULE BRM PROGRAM (BRM TEST VERSION)

Training Objective

Task: Employ night fire technique to engage targets at ranges of 25 and 50 meters.

Condition: Not stated.

Training Standard: Correctly employ night fire technique to effectively engage targets to ranges of 25 and 50 meters.

Intermediate Training Objectives

Intermediate Training Objective I

Task: Apply the night fire pointing technique during daylight (as applicable to night firing) from the bipod-supported prone position utilizing automatic fire.

Condition: Not stated.

Training Standard: Correctly apply the night fire pointing technique during daylight (as applicable to night firing) from the bipod-supported prone position utilizing automatic fire.

Intermediate Training Objective II

Task: Apply the principles of night vision in conjunction with the night fire pointing technique to engage targets at night.

Condition: Not stated.

Training Standard: Correctly apply the principles of night vision in conjunction with the night fire pointing technique to engage targets at night.

of performing the required actions. The demonstrations employed in this program were relatively short (about five minutes in length). For the most part, they were used during the initial stages of instructional periods to show trainees how to perform the tasks to be completed during these periods. Examples of typical demonstrations are as follows:

- o Demonstration of how to use the M16A1 sights
- o Demonstration of firing positions
- o Demonstrations of the "Eight Steady-Hold Factors"
- o Demonstration of the night-fire pointing technique

A practical exercise is a series of drills carried out to practice the accomplishment of a specified skill or set of skills. In this program this technique was the most frequently used training method. For each instructional period, at least one practical exercise was always completed by the trainees in order to develop proficiency in the application of the subject matter presented via lectures or demonstrations. Examples of these exercises are as follows:

- o Sighting device practice
- o Live-firing exercises
- o Target detection and range estimation practice

Training Devices. The practical exercises completed during a weapons training program frequently require the use of training devices. Such exercises constitute the most applied training method. In this program, four training devices were employed to support BRM training: the M15, Paige, and M16A1 sighting

devices. Additionally, a training aid, the Shot Group Analysis Card, is used to support this training.

The M15 sighting device (shown in Figure 1) is used in a practical exercise by the trainee to help him obtain a correct idea of what constitutes an appropriate M16A1 sight picture. To use the device, he manipulates Tab 1 until the sights are correctly aligned. Next, he adjusts Tab 2 until the aiming point is in the correct position. The aiming point should be on top of the front sight. The front sight should be centered in the circle. The Paige sighting device (shown in Figure 2) is also used to practice sight alignment and placement of the aiming point. It is inserted in the barrel of the rifle, target end up. The slide is then manipulated by the trainee's partner until the trainee says stop. The "stop" command is given when the trainee determines that the target is on top of the front sight. Finally, the M16A1 sighting device is used by the trainer to view the same sight picture as the trainee. This device is attached to the rear sight of the trainee's rifle. The trainer, looking in the window, can see abrupt changes in the trainee's sight picture moments before firing. The nature of these changes and their basis is noted by the trainer and communicated to the trainee along with appropriate guidance for correcting errors in aiming technique.

The Shot Group Analysis Card (shown in Figure 3) is used to assess trainee performance after completion of a live-fire exercise. As shown in this figure, reasons for various shot

2

AFTER ALINING THE
SIGHTS, CORRECTLY PLACE
THE AIMING POINT.

M15 SIGHTING DEVICE

SIGHT PICTURE INCLUDES TWO
ELEMENTS—SIGHT ALIGNMENT AND PLACING
OF THE AIMING POINT.

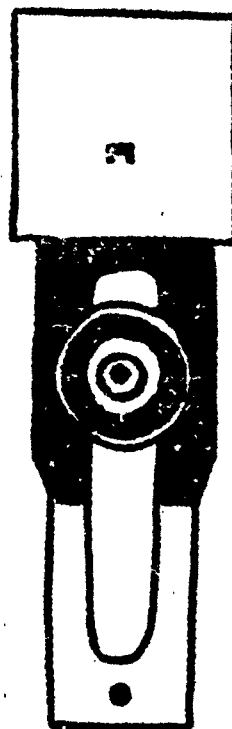


INCORRECT SIGHT ALIGNMENT WILL CAUSE
A GREATER ERROR IN THE STRIKE OF THE
BULLET AS RANGE INCREASES.

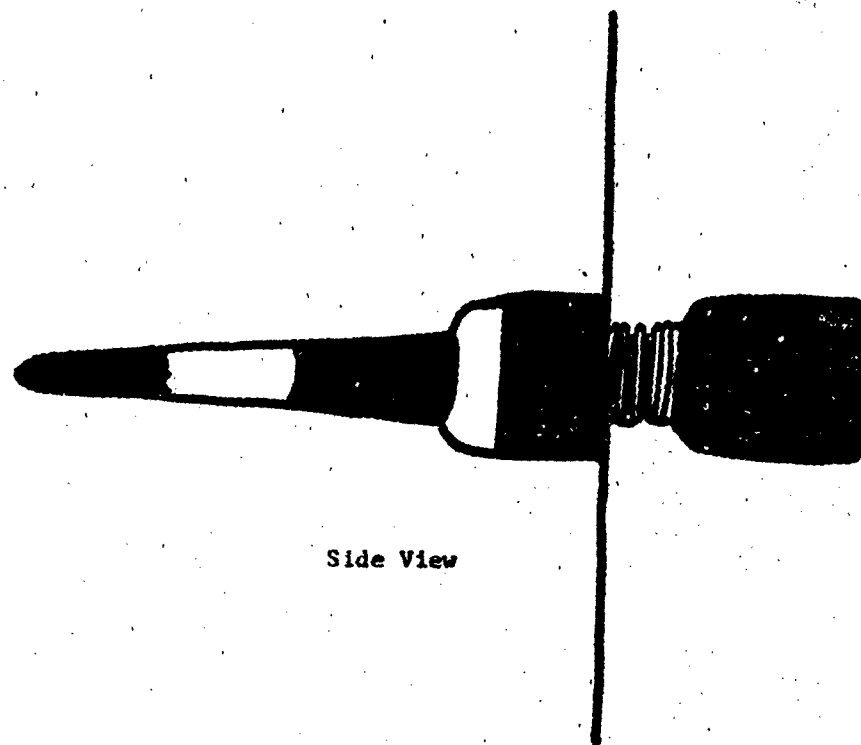
1

THE FIRST STEP IS TO
CORRECTLY ALINE THE SIGHTS.

Figure 1. M15 sighting device.



Rear View



Side View

Figure 2. Paige sighting device, rear and side views.

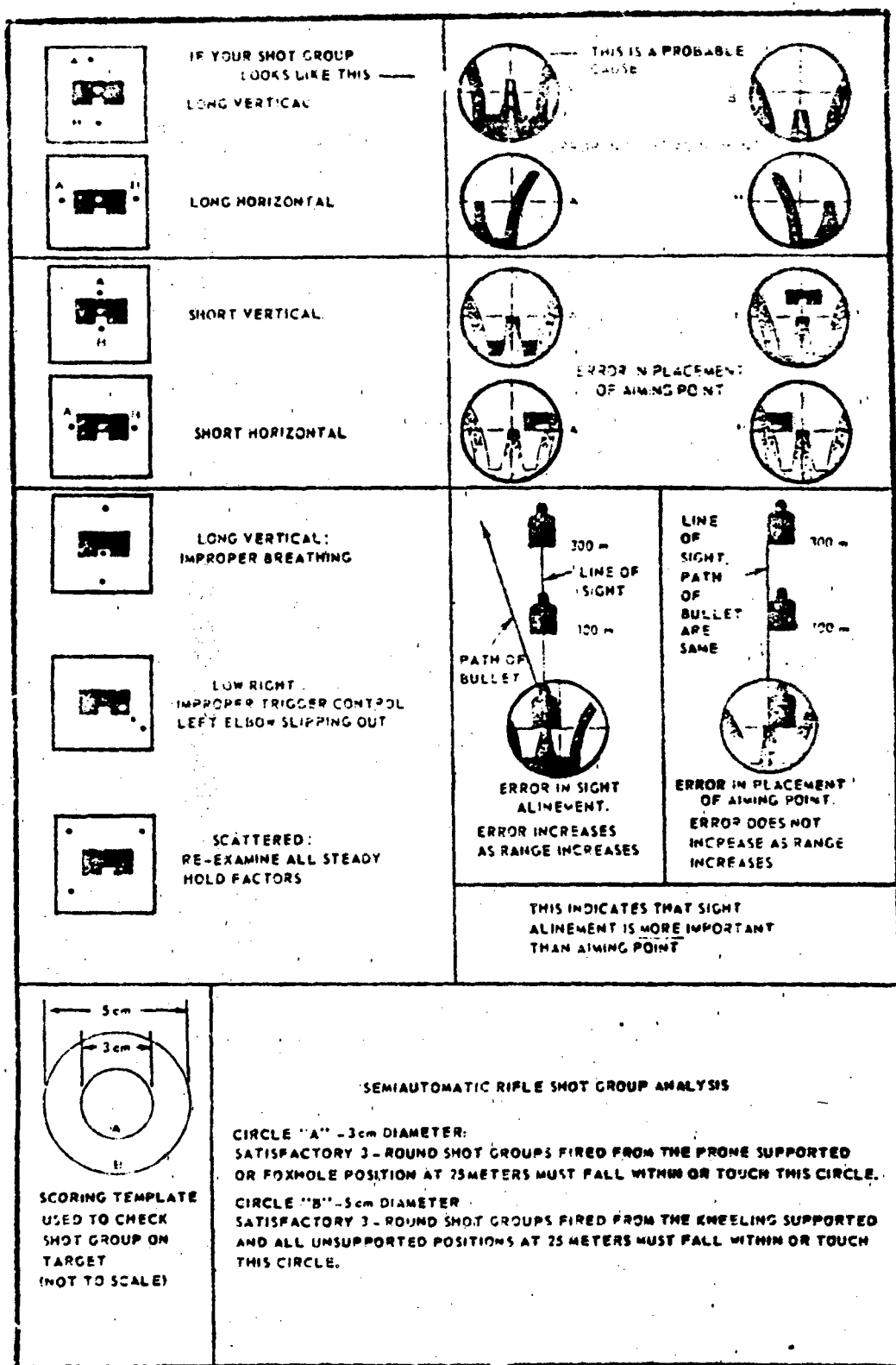


Figure 3. Shot group analysis card.

groups can be determined by simply interpreting the information provided on the card's face.

Training Exercises. The prime means used to support the practice of BRM skills in this program is the live-fire exercise. During such exercises, trainees fire a specific number of rounds at specific arrays of targets which vary in terms of the range of the targets fired on and the number of targets available for engagement at a given time. In addition, BRM skill practice is supported by non-firing exercises. Two basic non-firing exercises that are used to support instruction in this program are: the Transposition exercise, and the "Ball and Dummy" exercise.

The Transposition exercise is designed to teach the trainee sight alignment and to demonstrate the use of shot group analysis to correct an improper sighting technique. The exercise is normally conducted from the prone position in the following way: First, the trainee braces his rifle in a rifle rest and assumes the prone position next to the rifle. His right eye is situated as close as possible to the rear sight without disturbing the lay of the weapon. Concurrently, another trainee moves to and sits on the target box which is located 15 meters in front of the first trainee. A piece of white paper is attached to the front of the box. Next, the second trainee holds a target disk (See Figure 4) in front of the paper. The first trainee now aligns the rifle with the center of the box and indicates, verbally, to the second trainee to adjust the target disk

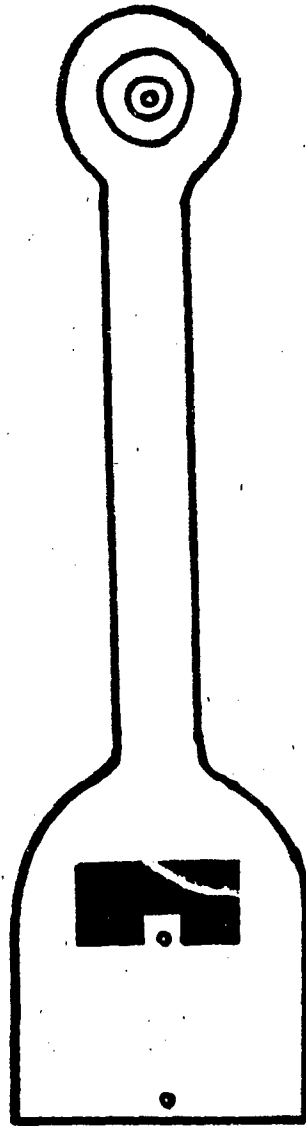


Figure 4. Target disk used during the conduct of the Transposition Exercise.

according to his instructions. Adjustments in the location of the target disk are continued until a correct target/sight alignment is obtained. Next, the second trainee indicates the target location by marking the paper with a pencil point passed through a hole in the disk. This procedure is completed three times. After the last time, a 3-point shot group is inspected and suggestions for corrections in the first trainee's sighting technique are made.

The "Ball and Dummy" exercise provides guidance for the proper way to squeeze the trigger during firing. In this exercise, an instructor loads a series of dummy and live rounds into the rifle. The order of loading is unknown to the trainee. Next, the trainee aims, applies the steady-hold factors and fires. When the dummy round is fired errors in trigger pull and breathing are evident. Suggestions for improving the trigger pull are then made.

Training References. Table B-23 presents the references used to support this program's marksmanship training and evaluation activities. Table B-23 shows that this program is guided by three references. However, FM 23-9 is the primary reference.

THE FORT BENNING BRM PROGRAM

Description of Program Training and Evaluation Activities.

Program Organization. The Fort Benning BRM program (see Table B-24) consists of ten periods: eight involving instruction and practice activities and two involving evaluation activities. Implementation of the program requires 35 hours and 334 rounds of ammunition. Functionally, the program consists of six phases:

Table B-23

REFERENCES USED DURING THE CONDUCT OF THE ARMY SUBJECT 1 SCHEDULE BRN PROGRAM (BRN TEST VERSION)

Period

1	Orientation and Mechanical Training	FM 23-9, Chapter 2
2	Introduction to Marksmanship	FM 23-9, Chapters 3 and 4
3	Preparatory Marksmanship (1)	FM 23-9, Chapters 3 and 4
4	Preparatory Marksmanship (2)	FM 23-9, Chapters 3 and 4
5	Preparatory Marksmanship (3)	FM 23-9, Chapters 3 and 4
6	Preparatory Marksmanship (4)	FM 23-9, Chapters 3 and 4
7	Introduction to Field Firing	FM 23-9, Chapters 5, 6, and Appendix D
8	Field Firing (1)	FM 23-9, Chapters 5, 6, and Appendix D
9	Field Firing (2)	FM 23-9, Chapters 5, 6, and Appendix D
10	Field Firing (3)	FM 23-9, Chapter 5
11	Record Fire I	FM 23-9, Chapters 2 through 6
12	Field Firing (4)	FM 23-9, Chapters 2 through 6
13	Field Firing (5)	FM 23-9, Chapters 5, 6, and Appendix D
14	Hasty Aimed Fire Training	FM 23-9, Chapters 5, 6, and Appendix D
15	Field Firing (6)	FM 23-9, Chapter 8
16	Record Fire II	FM 23-9, Chapter 5
17	Automatic Rifle Field Firing (1)	FM 23-9, Chapters 2 through 6, and 8
18	Automatic Rifle Field Firing (2)	FM 23-9, Chapter 7
19	Night Fire Training-Night	FM 23-9, Chapter 7
20	Night Fire Training-Daytime	FM 23-9, Chapter 7
		FM 23-9, Paragraphs 9-6 through 9-13;
		FM 21-75, Chapter 2, Section 5
21	Night Record Fire	FM 23-9, Chapter 9, Paragraphs 9-6 through 9-13

a Department of the Army. Field Manual 23-9, M16A1 Rifle and Rifle Marksmanship. Washington, D. C.: Author, 1974.

b Department of the Army. Field Manual 23-71, Rifle Marksmanship. Washington, D. C.: Author, 1966.

c Department of the Army. Field Manual 21-75, Combat Training of the Individual Soldier and Patrolling. Washington, D. C.: Author, 1967.

Table B-24

PERIODS DEFINING AND DISTRIBUTION OF PROGRAM HOURS AND ROUNDS OF AMMUNITION ACROSS PERIODS :
FORT BENNING BRM PROGRAM

Period	Period Title	Program Hours	Rounds of Ammunition
1	Orientation and Mechanical Training	4	0
2	Preparatory Marksmanship Training (1)	2	9
3	Preparatory Marksmanship Training (2)	2	9
4	Preparatory Marksmanship Training (3)	4	24
5	Introduction to Field Firing	4	42
6	Field Firing	4	36
7	Practice Record Fire	4	40
8	Record Fire	5	40
9	Twenty-five Meter Automatic Rifle Firing	3	45
10	Night Record Fire	3	89
Total		35 Hours	334 Rounds

- o Orientation and Mechanical Training
- o Preparatory Marksmanship
- o Record Fire Preparation
- o Day Record Fire Evaluation
- o Automatic Rifle Firing
- o Night Rifle Firing

Table B-25 indicates the periods of instruction included in each phase and the distribution of hours and rounds of ammunition across phases. Inspection of this table shows that the majority of hours and rounds allocated for this program are used, as in the ASUBJS CD program, within the Preparatory Marksmanship and Record Fire Preparation training phases and the Record Fire evaluation phases. These are the phases designed to teach and evaluate the proper handling and accurate firing of the M16A1 rifle.

As in the ASUBJS CD program, the training and evaluation phases defining the Fort Benning program are implemented sequentially. Orientation and Mechanical Training and Preparatory Marksmanship training are requisite to the Record Fire Preparation phase and the Day Record Fire evaluation. The Day Record Fire evaluation phase must be satisfactorily completed before a trainee enters the Automatic Rifle Firing phase. Automatic rifle firing is requisite to completion of the Record Fire evaluation. Implicit in the structure of this program is the same philosophy that guides the ASUBJS CD program. That is, BRM skills are considered to be requisite to Automatic and Night Rifle Firing training and evaluation. Further, as in the ASUBJS CD program, BRM qualification occurs once the Day and Night Record Fire

Table B-25

PROGRAM PERIODS INCLUDED IN AND DISTRIBUTION OF HOURS AND ROUNDS ACROSS THE TRAINING AND EVALUATION PHASES DEFINING THE FORT BENNING BRI PROGRAM

Phase	Periods Included		Hours Allocated		Rounds Allocated	
	In Phase		To Phase		To Phase	
Training						
Orientation and Mechanical Training	1		4		0	
Preparatory Marksmanship	2,3,4		8		42	
Record Fire Preparation	5,6,7		12		118	
Automatic Rifle Firing	9		3		45	
Total Training		8 Periods	27 Hours		205 Rounds	
Evaluation						
Day Record Fire	8		5		40	
Night Record Fire	10		3		99	
Total Evaluation		2 Periods	8 Hours		129 Rounds	
Total Program		10 Periods	35 Hours		334 Rounds	

evaluations have both been successfully completed.

Orientation and Mechanical Training. This phase is conducted in a classroom. Trainees are first briefed on the scope of rifle marksmanship training and rifle nomenclature. That briefing is followed by an introduction to rifle clearing techniques. Next, trainees are taught to disassemble and assemble the rifle and are shown how to perform a function check. Instruction in disassembly and assembly and loading and unloading the magazine and rifle follows. Stoppages, immediate action, and remedial action are discussed.

Trainees are next shown how to care for, clean, and lubricate the rifle and magazine. Finally, the types of ammunition used in firing the M16A1 are presented and discussed. Additionally, during this program phase, trainees complete practical exercises designed to measure their ability to perform each of the following tasks:

- o Clear, disassemble, and assemble the rifle
- o Conduct a function check
- o Clean the rifle
- o Load and unload the magazine and rifle
- o Perform immediate action on the rifle
- o Perform preventive maintenance on the rifle

"Success" in this phase is measured in terms of how well these tasks are completed, with the most importance being placed on success in the clearing, disassembly, and assembly of the rifle.

Preparatory Marksmanship. Implemented on a 25-meter range, this phase involves instruction in the following marksmanship fundamentals:

- o How to aim the rifle
- o How to hold the rifle
- o Assumption of firing positions
- o Trigger control
- o The act of followthrough
- o Sight correction

Eight hours and 42 rounds of ammunition distributed across three instructional periods (See Table B-25) are allocated for this phase. This phase is successfully completed once the trainee battlesight zeroes his weapon.

Preparatory Marksmanship Training (1). During this two hour session, sight alignment, placement of the aiming point, focus of the eye, and the importance of aiming are discussed. Next, the foxhole firing position and the eight steady-hold factors are demonstrated. Afterwards, the technique of followthrough and the principles of shot group analysis are explained and demonstrated. Next, the safety requirements for live-firing are presented and discussed. Following this briefing, the trainees each fire three, three-round shot groups from the foxhole position. Using the Shot Group Analysis Card and judgmental analysis, instructors review the trainees' shot groups and critique their performance.

Preparatory Marksmanship Training (2). At the beginning of this session, aiming and the importance of sight alignment are reviewed. Next, the Transportation Exercise is explained and demonstrated. Following this, the trainees complete the exercise. Afterwards, the principles of sight adjustment and the effects of sight changes on accuracy are discussed. Next, the trainees receive a briefing on live-fire safety requirements. Following this briefing, the trainees complete a live-fire exercise during which three, three-round shot groups are fired from the foxhole firing position. Again, instructors critique trainee firing performance. This critique is based on guidance provided by the Shot Group Analysis Card. Concurrently, trainees practice assuming the prone unsupported and supported firing positions while applying the eight steady-hold factors.

Preparatory Marksmanship Training (3). Within this period, sight changes and their effects are reviewed; the achievement of battlesight zero is explained; and the safety requirements for live-firing are discussed. Next, trainees fire between 6 and 18 rounds in 3-round shot groups from the foxhole firing position in order to battlesight zero. Concurrently, the trainees practice magazine changing and application of the steady-hold factors in the kneeling unsupported, kneeling supported, and prone unsupported positions. Also, three, three-round shot groups are fired from the kneeling supported and prone unsupported position.

Record Fire Preparation. This phase of training comprises 12 hours of instruction to which 118 rounds of ammunition are allocated as shown in Table 8-25. The 12 hours are distributed

across three instructional periods (See Table B-25). Each period is conducted on a Field Fire range having the capacity to present both single and multiple pop-up targets at ranges out to 300 meters for time periods ranging from 5 to 20 seconds.

Introduction to Field Firing. Initially in this session, range procedures and safety precautions are explained. Next, the trainees receive an explanation and demonstration of the center-of-target method of aiming. Also, at this time, the optimum time-to-fire concept is presented. Afterwards, the trainees complete a 36-round live-fire exercise in field firing from the foxhole, prone unsupported, kneeling unsupported, and kneeling supported firing positions. The purpose of the exercise is to acquaint the trainees with the Field Fire range and its operation. During the exercise, firing is completed as shown in Table B-26. Only single targets are engaged during this exercise. In addition, 25 meter-firing is continued for those trainees who failed to achieve a battlesight zero during the previous training phase. Finally, the trainees review all of the firing positions covered in the program up through this period.

Field Firing. During this session, the trainees first review the range and safety procedures for field firing. Next, the principles of engaging multiple targets are presented and discussed. Afterwards, a 36-round live-fire practical exercise is completed. To complete this exercise, the trainees fire 16 rounds from the foxhole position, 8 from the kneeling unsupported position, 7 from the prone supported position, and 5 from the prone

Table B-3b

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION AND TARGET RANGE :
INTRODUCTION TO FIELD FIRING, FORT BENNING BRY PROGRAM

Firing Position	Target Range (Meters)		
	75	175	300
Foxhole	4	4	4
Prone Unsupported	4	4	4
Kneeling Unsupported	2	2	2
Kneeling Supported	2	2	2

unsupported position. With the exception of 2 rounds (one fired from the foxhole position and one from the kneeling unsupported position) all firings in this exercise are conducted against multiple targets. (See Table B-27).

Additionally, during this period the trainees practice rapid reloading and the application of immediate action. Finally, trainees receive instruction in the principles of target detection, the principles for selecting an observation position, and methods for conducting a visual search.

Practice Record Fire. At the beginning of this session, range and safety procedures, the center-of-target aiming technique, and the principles of multiple target engagement are reviewed. Next, a 40-round live-fire exercise is completed. The purpose of this exercise is to prepare the trainees for firing the Record Fire evaluation completed in the next phase of this program. For this reason, the firing requirements of the preparatory exercise are very similar to those of the Record Fire evaluation. Table B-28 presents the distribution of rounds fired by firing position and target range during the preparatory exercise. As shown in this table, firing is completed from only the foxhole and prone unsupported positions against both single and multiple target configurations located at target ranges out to 300 meters.

Day Record Fire Evaluation. The purpose of this evaluation, (which requires five hours for completion) is to measure the trainee's ability to proficiently use the M16A1 rifle to engage

Table B-27

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION, TARGET TYPE,
AND TARGET RANGE : FIELD FIRING, FORT BENNING BRM PROGRAM

Firing Position	Target Type	Target Range (Meters)		
		75	175	300
Foxhole	Single	1	-	-
	Multiple	2	5	8
Kneeling Unsupported	Single	1	-	-
	Multiple	3	3	1
Prone Supported	Single	-	-	-
	Multiple	-	2	3
Prone Unsupported	Single	-	-	-
	Multiple	1	2	4

Table B-28

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION, TARGET TYPE, AND TARGET RANGE:
PRACTICE RECORD FIRE, FORT BENNING BRM PROGRAM

Firing Position	Target Type	Target Range		
		Short ^a	Medium ^b	Long ^c
Foxhole	Single	3	5	3
	Multiple	4	2	3
Prone Unsupported	Single	4	4	4
	Multiple	3	3	2

^a 50 or 100 meter target ranges

^b 150 or 200 meter target ranges

^c 250 or 300 meter target ranges

combat-like targets. It is conducted on a Record Fire range in the following way. First, the trainees receive a briefing designed to orient them to the Record Fire evaluation. Next, specific range procedures and safety precautions are discussed. Afterwards, a 40-round live-fire exercise (See Table B-29) is completed. As shown in Table B-29 only two firing positions are employed during firing (the foxhole and prone unsupported positions). Two types of targets are engaged during firing: single targets and multiple targets. These targets are located at short (50- or 100-meter), medium (150- or 200-meter), and long (250- or 300-meter) ranges. For each firing position, the distribution of firings across these ranges is approximately equal for single and multiple targets. The number of target hits achieved during the exercise constitutes the trainee's score.

If less than 17 hits are obtained by a trainee during the evaluation, he is allowed to refire the exercise until a score of 17 or better is achieved. However, during the BRM Test, the number of refires was limited to just two. Trainees failing to achieve the minimum score were either recycled or the minimum hit criterion was waived by the local commander. In the latter case, the trainee continued on to the next phase of the program.

In addition to the Record Fire evaluation, trainees also received some instruction in automatic and night rifle firing during this phase: the steady-hold factors as they apply to soldiers in the bipod-supported prone position, the pointing techniques used during night firing, and rapid magazine changing. Following this, a practical exercise involving rapid magazine

Table B-29

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITIONS, TARGET TYPE, AND
 TARGET RANGE: DAY RECORD FIRE, FORT BENNING BRM PROGRAM

Firing Position	Target Type	Target Range	
		Short	Medium
Foxhole	Single	3	4
	Multiple	3	3
Prone Unsupported	Single	1	1
	Multiple	5	6

a 50 or 100 meter target ranges
 b 150 or 200 meter target ranges.
 c 250 or 300 meter target ranges

chancing and night-fire-pointing techniques is completed.

Automatic Rifle Firing Training. This training phase is completed immediately following the Day Record Fire evaluation on a 25-meter range. First, the advantages and disadvantages of automatic fire are reviewed. Then a comparison demonstration between automatic and semiautomatic firing is conducted. Following this demonstration, automatic rifle steady-hold factors, as they apply in the blood-prone supported position, aiming, and trigger control are reviewed. Trainees are then instructed on automatic fire safety procedures. This instruction is followed by a 25-meter live-fire exercise in the automatic mode. First, trainees fire three, three-round bursts using three-round magazines, at standard 25-meter automatic fire zero targets in order to obtain a battlesight zero. Automatic fire templates are used to determine if a zero is achieved. Next, trainees fire six, three-round bursts at configurations B and C on the 25-meter automatic target. Following engagement of configurations B and C, six, three-round bursts are fired at configuration E on the automatic fire target. These firings are summarized in Table B-30.

Night Record Fire Evaluation. This is the final phase of the Fort Benning program. It is conducted on a Night Fire Range. Trainees are given an orientation which explains the conduct of the evaluation and the range procedures and safety precautions involved in night firing. Next, the night-fire-pointing technique and the principles involved in using the automatic mode at night are discussed. Next, the use of the

Table B-30

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING PHASE AND TARGET TYPE:
AUTOMATIC RIFLE FIRING, FORT BENNING BR1 PROGRAM

Firing Phase	Target Type ^a	Number of Rounds Fired
1	"Zero-Target"	3, 3-round bursts
2	B and C Configurations	6, 3-round bursts
3	E Configurations	6, 3-round bursts

^aAll firings conducted against the standard 25-meter automatic rifle target.

Low Light Level Sight System (LLLSS) in the semiautomatic mode is explained and demonstrated. Finally, the Night Record Fire exercise is conducted.

To complete this exercise, trainees fire three practice rounds at 25-meter targets using the LLLSS in the semiautomatic mode. These rounds are fired to introduce the soldier to the use of the LLLSS in the semiautomatic mode. Next, ten rounds for record are fired in the same manner. Afterwards, from the bipod-prone supported position one, three-round practice burst, in which the first round is a tracer, is fired at 25-meter targets in the automatic mode. Next, ten rounds for record are fired at 50-meter targets using the LLLSS in the semiautomatic mode from the bipod-prone unsupported position. Then, one three-round practice burst is fired at 50-meter targets using the automatic mode. The first round of that burst is a tracer. Finally, ten, three-round bursts for record are fired at 50-meter targets using the automatic mode. These firings are summarized in Table B-31. Qualification in this phase is based on a GO/NO-GO criterion. To achieve a GO, twenty or more hits must be achieved over the rounds fired for record.

Training Objectives. Specific objectives for this program were derived from an inspection of the lesson plans supporting the implementation of the program. These are presented in Tables B-32 through B-35.

Program Training Practices. In this section of the report, the practices characteristic of the Fort Benning BRM program

Table B-31

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING PHASE, FIRING MODE, AND TARGET RANGE :
NIGHT RECORD FIRE EVALUATION, FORT BENNING BRM PROGRAM

Firing Phase	Firing Mode	Target Range (Meters)	Number of Rounds Fired
1	Semiautomatic / LLLSS Used	25	3
2	Semiautomatic / LLLSS Used	25	10
3	Automatic / LLLSS Not Used	25	1,3-round burst
4	Automatic / LLLSS Not Used	25	10,3-round bursts
5	Semiautomatic / LLLSS Used	50	10
6	Automatic / LLLSS Not Used	50	1,3-round burst
7	Automatic / LLLSS Not Used	50	10,3-round bursts

Note: Only firings during firing phases 2, 4, 5, and 7 are counted in determining the Night Record fire score.

Table B-32

TRAINING OBJECTIVES FOR THE ORIENTATION AND MECHANICAL TRAINING PHASE: FORT BENNING BEM PROGRAM

Training Objective

Task: Each individual will clear, disassemble, and assemble the M16A1 rifle and conduct a function check.
 Condition: Indoors or outdoors, given an M16A1 rifle and a dummy cartridge or similar pointed object.
 Training Standard: Rifle is disassembled within three minutes to degree authorized by FM 23-9. When assembled, the rifle functions.

Intermediate Training Objectives

Intermediate Training Objective I

Task: Each individual will disassemble, clean, and assemble the M16A1 rifle magazine.
 Condition: Indoors or outdoors, given an M16A1 rifle magazine and a dummy cartridge or similar pointed object.
 Training Standard: Magazine is disassembled per FM 23-9. When assembled the magazine functions.

Intermediate Training Objective II

Task: Each individual will load and unload the M16A1 rifle magazine.
 Condition: Indoors and outdoors, given an M16A1 rifle magazine and five dummy cartridges.
 Training Standard: Magazine is loaded and unloaded per FM 23-9 without damage to magazine or dummy cartridges.

Intermediate Training Objective III

Task: Each individual will load and unload the M16A1 rifle.
 Condition: Indoors or outdoors, given an M16A1 rifle, magazine, and two dummy cartridges.
 (continued)

Table B-32 (concluded)

Training Standard: Rifle will be loaded per FM 23-9

Intermediate Training Objective IV

Task: Each individual will perform immediate action on the M16A1 rifle.
 Condition: Indoors or outdoors, given an M16A1 rifle, magazine, and five dummy cartridges.
 Training Standard: Immediate action will be performed per FM 23-9.

Intermediate Training Objective V

Task: Each individual will perform preventive maintenance on the M16A1 rifle.
 Condition: Indoors or outdoors, given the M16A1 rifle and maintenance equipment.
 Training Standard: Maintenance will be conducted IAW FM 23-9, paragraph 2-14 and 2-15.

Table B-33

TRAINING OBJECTIVES FOR THE PREPARATORY MARKSMANSHIP PHASE: FORT BENNING BCM PROGRAM

Training Objectives

Training Objective I

Task: Each individual will fire nine rounds from the foxhole position.
 Condition: On a 25-meter range, during daytime, given an M16A1 rifle, magazine, and nine rounds of ball ammunition.
 Training Standard: Integrated act of shooting correctly applied; foxhole position properly utilized.

Intermediate Training Objective

Task: Each individual will analyze his three, three-round shot groups.
 Condition: On a 25-meter range, during daytime, after firing each three-round shot group.
 Training Standard: Well enough to identify and correct errors in applying the integrated act of shooting.

Training Objective II

Task: Each individual will assume the prone unsupported and supported firing positions.
 Condition: In the concurrent training area, on a 25-meter range, during daylight, given an M16A1 rifle and three sandbags.
 Training Standard: Positions assumed correctly; steady-hold factors applied properly.

Training Objective III

Task: Each individual will fire nine rounds from the foxhole position.
 Condition: On a 25-meter range, during daytime, given an M16A1 rifle, magazine, and nine rounds of ball ammunition.
 (continued)

Table B-33 (continued)

Training Standard: Integrated act of shooting correctly applied; foxhole position properly utilized.

Intermediate Training Objectives

Intermediate Training Objective I

Task: Each individual will analyze his three, three-round shot groups.
 Condition: On a 25-meter range, during daytime, after firing each three-round shot group.
 Training Standard: Well enough to identify and correct errors in applying the integrated act of shooting.

Intermediate Training Objective II

Task: Each individual will learn the principles of sight adjustment.
 Condition: On a 25-meter range during daylight.
 Training Standard: Well enough to make sight changes so that a three-round shot group falls within a 5.2 cm circle.

Intermediate Training Objective III

Task: Each individual will practice the Transposition Exercise.
 Condition: In the concurrent training area, on a 25-meter range, during daylight, given an M16A1 rifle looking device, a target board, an 8 x 10 blank white sheet of paper, a pencil, a shot group analysis card, an M15 Sighting Device, one plastic target paddle, and one safety pin.
 Training Standard: Well enough to obtain one, one-to-three cm shot group.

Training Objective IV

Task: Each individual will fire six to thirty-six rounds from the foxhole position.
 Condition: On a 25-meter range, during daylight, given an M16A1 rifle with magazine and sufficient ammunition, and necessary 25-meter targets.
 Training Standard: Well enough to zero the weapon (one three-round shot group touching on, or within a 5.2 cm circle).

(continued)

Table B-3j (concluded)

Training Objective V

Task: Each individual will assume the kneeling unsupported and supported firing positions.
 Condition: In concurrent training, on a 25-meter range, during daylight, given an M16A1 rifle and necessary support.
 Training Standard: Positions assumed correctly; steady-hold factors applied properly.

Training Objective VI

Task: Each individual will fire three rounds from the prone unsupported and kneeling supported positions.
 Condition: On a 25-meter range, during daylight, given an M16A1 rifle with magazine and six rounds, support, and 25-meter target.

Training Standard: Positions assumed correctly; steady-hold factors applied properly.

Training Objective VII

Task: Each individual will conduct a rapid-reload exercise.
 Condition: In the concurrent training area, on a 25-meter range, during daylight, given an M16A1 rifle and five M16A1 magazines.

Training Standard: Well enough to change magazines within 10 seconds.

Table B-34

TRAINING OBJECTIVES FOR THE RECORD FIRE PREPARATION PHASE: SORT FENNING RPT. PROGRAM

Training Objectives

Training Objective I

Task:

Each individual will fire at single exposure, E- and F-type targets from various positions at various distances out to 300 meters.

Condition:

On a field fire range, during daylight, given an M16A1 rifle, seven magazines, 12 rounds of ammunition, and 12 targets to shoot at.

Training Standard: Well enough to hit 17 targets.

Training Objective II

Task:

Each individual will fire at single and multiple targets from various positions at various distances out to 300 meters.

Condition:

On a field fire range, during daylight, given an M16A1 rifle, six magazines, 16 rounds of ammunition, and 16 targets to shoot at.

Training Standard: Well enough to hit 15 targets.

Training Objective III

Task:

Each individual will locate, mark, and determine the range to single and multiple stationary and moving targets.

Condition:

On a target detection range, during daylight, given targets to locate.

Training Standard:

All moving targets detected; range determined within 10 percent.

Training Objective IV

Task:

Each individual will fire at E- and F-type targets from the foxhole and prone unsupported position.
(continued)

Table B-1: (concluded)

Condition: On a record fire range, during daylight, given an M16A1 rifle, four magazines, 40 rounds of ammunition, and 40 targets to shoot at.

Training Standard: Well enough to hit 17 targets.

Table B-35

TRAINING OBJECTIVES FOR THE AUTOMATIC RIFLE FIRING PHASE: FORT BENNING BR4 PROGRAM

Training Objective

- Task: Each individual will fire 45 rounds from the hipod-supported prone firing position in the automatic mode.
- Condition: On a 25-meter range, during daylight, given an M16A1 rifle with four magazines, 45 rounds of ammunition, and one 25-meter automatic fire target.
- Training Standard: Correct position utilized; three-round burst technique utilized.

are discussed. These were derived from an examination of the POI, lesson plans, and information compiled during interviews with personnel involved in the conduct of the Fort Jackson BRM Test.

Training Techniques. The techniques employed to conduct training for the Fort Benning program were identical to those employed during the conduct of the ASUBJSCD program, i.e., lectures, demonstrations, and practical exercises. The only major difference between the use of these techniques in the two programs was in terms of types of dry-fire practical exercises used to support preparatory marksmanship practice activities. In particular, the Fort Benning program only used the Transposition Exercise to support dry-fire aiming and sight alignment practice. This is in contrast to the ASUBJSCD program which used the M15 and Paige sighting devices, in addition to the Transposition Exercise, to support dry-fire aiming and sight alignment practice.

Training Devices. The Shot Group Analysis Card was the major training device used during the implementation of the Fort Benning program. Instructor personnel used this device to assist in critiquing the performance of trainees with respect to the compactness of their shot groups. Information printed on the card was used to identify probable causes for inadequately compact shot groups.

Training Exercises. Live-fire practical exercises are the prime means used to support the practice of BRM skills

In this program. As discussed above, the only non-firing training exercise used in this program was the Transportation Exercise.

Training References. Table B-36 presents the references supporting each training and evaluation phase of the Fort Benning BRM program. As shown in this table two references were employed for this purpose: FM 7-9 and AR 385-63.

THE FORT DIX BRM PROGRAM

Description of Program Training and Evaluation Activities.

Program Organization. The Fort Dix BRM program, like the Fort Benning program, consists of ten periods: eight involving training activities and two involving evaluation activities. Implementation requires 49 hours of instruction and 262 rounds of ammunition (see Table B-37). Functionally, the program is composed of seven phases. They are as follows:

- o Orientation and Mechanical Training
- o Preparatory Marksmanship
- o Record Fire Preparation
- o Day Record Fire I Evaluation
- o Day Record Fire II Evaluation
- o Automatic Rifle Firing
- o Night Rifle Firing

Table B-38 indicates the periods of defining each training phase. This table also shows the distribution of hours and rounds of ammunition across phases. An inspection of this table indicates the majority of hours and rounds of ammunition fired in the Fort Dix program are apportioned to the Preparatory Marksmanship and Record Fire Preparation training phases and the Record Fire evaluation

Table 3-36

REFERENCES USED DURING THE CONDUCT OF THE FORT BENNING BRM PROGRAM

Period	Period Title	References
1	Orientation and Mechanical Training	FM 23-9, ^a AR 385-63 ^b
2	Preparatory Marksmanship Training (1)	FM 23-9, AR 385-63
3	Preparatory Marksmanship Training (2)	FM 23-9, AR 385-63
4	Preparatory Marksmanship Training (3)	FM 23-9, AR 385-63
5	Introduction to Field Firing	FM 23-9, AR 385-63
6	Field Firing	FM 23-9, AR 385-63
7	Practice Record Fire	FM 23-9, AR 385-63
8	Record Fire	FM 23-9, AR 385-63
9	Twenty-five Meter Automatic Rifle Firing	FM 23-9, AR 385-63
10	Night Record Fire	FM 23-9, AR 385-63

^a Department of the Army. Field Manual 23-9, M16A1 Rifle and Rifle Marksmanship. Washington, DC: Author, 1974.

^b Department of the Army. Army Regulation 385-63, Regulations for Firing Ammunition for Training, Target Practice, and Combat. Washington, DC: Author, 1973.

Table B-47

PERIODS DEFINING AND DISTRIBUTION OF PROGRAM HOURS AND ROUNDS OF AMMUNITION ACROSS PERIODS:
FORT DIN BAY PROGRAM

Period	Period Title	Program Hours	Rounds of Ammunition
1	Preparatory Rifle Instruction (Mechanical Training)	4	0
2	Preparatory Rifle Instruction (Fundamentals)	4	0
3	Introduction to the Twenty-five Meter Range	4	18
4	Twenty-five Meter Firing (1)	4	18
5	Twenty-five Meter Firing (2)	8	12
6	Known Distance Firing	4	12
7	Field Firing	4	36
8	Record Fire I	6	50
9	Record Fire II	6	50
10	Automatic Rifle Firing and Night Rifle Firing	2.5	36
		2.5	30
	Total	49 Hours	262 Rounds

Table B-38

PROGRAMS PERIODS INCLUDED IN AND DISTRIBUTION OF HOURS AND ROUNDS ACROSS THE TRAINING AND
EVALUATION PHASES DEFINING THE FORT DIX BRN PROGRAM

Period	Periods Included In Phase	Hours Allocated To Phase	Rounds Allocated To Phase
Training			
Orientation and Mechanical Training	1	4	0
Preparatory Marksmanship	2,3,4,5	20	48
Record Fire Preparation	6,7	8	48
Automatic Rifle Firing	10	2.5	36
Night Rifle Firing	10	2.5	30
Total Training	8 Periods	37 Hours	162 Rounds
Evaluation			
Day Record Fire I	8	6	50
Day Record Fire II	9	6	50
Total Evaluation	2 Periods	12 Hours	100 Rounds
Total Program	10 Periods	49 Hours	262 Rounds

phases. The instructional emphasis is, like the programs discussed previously, on the handling and firing of the M16A1 rifle.

Also, like the other BRM programs discussed above, the training and evaluation phases are implemented sequentially. The Orientation and Mechanical Training phase is requisite to the Preparatory Marksmanship training phase. Completion of the Preparatory Marksmanship phase is required before trainees can complete the Record Fire Preparation phase and the Day Record Fire evaluation phases. Finally, automatic rifle firing and night rifle firing training is conducted only after the Day Record Fire evaluation phases have been completed satisfactorily.

Orientation and Mechanical Training. This four-hour phase is conducted in a classroom equipped with an Educational Television terminal (ETV). The majority of the instruction in this phase is presented via the ETV. It begins with a presentation of the history of the BRM program. This presentation includes a discussion of the rifle's developmental history and the rifleman's role. Next, techniques for clearing the rifle are introduced. Afterwards, trainees are introduced to the rifle's nomenclature. Following this introduction, techniques for taking immediate action, disassembling and assembling the rifle and handling stoppages are introduced and explained. Next, the methods for loading and unloading the weapon are explained. Then, preliminary zeroing of the weapon occurs. Finally, a conference on hearing conservation is presented. The period ends with a performance test designed to measure the trainee's ability to disassemble, assemble, and apply immediate action to the M16A1 rifle.

Preparatory Marksmanship. As shown in Table B-39, this phase consists of four training sessions to which 20 hours of instruction and 48 rounds of ammunition (per trainee) have been allocated. All of this phase is conducted on a 25-meter range. This phase is successfully completed once the trainee is able to battlesight zero his rifle.

Preparatory Rifle Instruction (Fundamentals). During this period, a conference on and a demonstration of the integrated act of firing, including methods for obtaining sight picture and sight alignment, is presented. Also demonstrated and explained are the techniques of aiming point placement, and eye focusing while aiming. The presentation of the steady-hold factors is followed by a review of immediate action and instruction in assumption of the prone supported position. The Transposition Exercise is completed and the M15 sighting device employed during a practical exercise on sight alignment. No live-fire practice is conducted in this period, i.e., only dry-fire exercises are employed to support practice in aiming and sight alignment.

Introduction to the Twenty-Five Meter Range. A review of aiming technique, the importance of sight alignment, and techniques of aiming point placement initiate this instructional session. This review is followed by the introduction and explanation of shot group analysis. Next, a practical exercise is conducted during which trainees fire six, three-round shot groups from the prone supported position. Additionally, the Transposition Exercise is used to support aiming practice. During the completion of this exercise, the steady-hold factors of rifle marksmanship are reviewed

and practices. Trainees also are allowed to begin making sight changes. Finally, remedial work is completed as needed.

Twenty-Five Meter Firing (1). In this session a review of the integrated act of firing, including discussions about shot group analysis, sight and adjustments, and principles of battlesight zeroing, is conducted. Next, a practical exercise is conducted with trainees firing six, three-round shot groups at 25-meter targets from the prone supported firing position. Trainees complete the Transposition Exercise and receive additional instruction in assuming the prone supported position.

Twenty-Five Meter Firing (2). The primary objective of this session is to instruct trainees on battlesight zeroing. Trainees are first provided a review of:

- o The eight steady-hold factors
- o Proper sighting techniques
- o The prone supported position
- o The principles of sight adjustments and their effects
- o The principles of battlesight zeroing.

A practical exercise follows the review. During this exercise, trainees fire four, three-round shot groups from the prone supported position. If a trainee fails to battlesight zero his weapon at this time, he continues firing until a battlesight zero is obtained.

Target detection training and training in assuming the prone position, the kneeling positions (supported and unsupported), and the foxhole standing positions are also conducted during this period. Additionally, exercises involving scanning, target

detection, and range estimation are conducted.

Record Fire Preparation. This phase consists of two periods of instruction. The first involves the completion of a known distance firing exercise designed to allow the trainee to check the battlesight zero of his weapon. The second involves instruction and practice designed to teach the trainee the principles of engagement for combat-like (field) targets.

Known Distance Firing. This period (conducted on a Known Distance range) is initiated with a review of steady-hold factors, aiming point placement, and the prone firing positions. Next, range and safety procedures are reviewed. Techniques for marking and spotting hits are explained and demonstrated. Next, techniques for adjusting the point of aim are presented. Finally, a practical exercise is conducted. Trainees fire four, three-round shot groups at 200-yard targets from the prone position. After each three-round shot group is fired, targets are lowered, marked, and spotted. Instructors use the trainee's marked and spotted targets for critiquing his performance. As mentioned above, the purpose of this session is to confirm the trainee's battlesight zero. However, firing at a 200-yard target is inappropriate for confirming the M16A1 rifle battlesight zero. To properly confirm battlesight zero requires 250-meter targets. Therefore, it would have been more appropriate to conduct this firing exercise using 250-meter targets.

Field Firing. This session, conducted on a Field Fire range, is initiated with a discussion of range and safety

procedures for field firing. Next, moving with a loaded weapon is discussed. Following this instruction, techniques for engaging multiple targets are presented and discussed. Finally, trainees participate in a live-fire exercise. During this exercise, a total of 36 rounds are fired: nine each from the kneeling supported, kneeling unsupported, foxhole, and standing positions. Depending upon the firing position, either single or multiple, or both types of targets are fired upon. Table B-39 presents the distributions of firings for the exercise as a function of firing position, target type, and target range. Trainees also receive instruction in the foxhole kneeling, kneeling supported, and standing positions during this period.

Day Record Fire Evaluation. This evaluation is conducted in two, six hour parts. The first part, Record Fire I, commences with an orientation for the conduct of the exercise. Next, the principles involved in detecting and engaging single and multiple combat targets in their natural surroundings are introduced, explained, and discussed. Next, the trainees complete a ten-round practice exercise. This exercise consists of firing at single targets located at ranges from 50 to 300 meters. Next, trainees complete the 40-round Record Fire exercise. Table B-40 shows distribution of single and multiple targets fired upon during this exercise. If a trainee fails to achieve 20 hits, after completing the exercise, he completes remedial training. After this, he refires the Record Fire I exercise. Once this exercise has been successfully fired, the trainee is allowed to complete the next phase of the evaluation, Record Fire II.

Table B-39

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION, TARGET TYPE,
AND TARGET RANGE : FIELD FIRING, FORT DIX ASM PROGRAM

Firing Position	Target Type	Target Range (Meters)		
		75	175	300
Kneeling Supported	Single	2	-	-
	Multiple	3	2	2
Kneeling Unsupported	Single	2	1	2
	Multiple	1	2	1
Foxhole	Single	-	-	-
	Multiple	2	3	4
Standing	Single	5	4	-
	Multiple	-	-	-

Table B-40

DISTRIBUTION OF FIRING IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION, TARGET TYPE,
AND TARGET RANGE : DAY RECORD FIRES I AND II, FORT DIX BRM PROGRAM

Firing Position	Target Type	Target Range		
		Short ^a	Medium ^b	Long ^c
Record Fire I	Foxhole	3	3	3
	Single Multiple	4	2	3
	Prone Unsupported	4	4	4
	Single Multiple	3	1	1
Record Fire II	Foxhole	-	1	2
	Single Multiple	2	3	2
	Prone Unsupported	-	-	2
	Single Multiple	4	8	6
	Kneeling Unsupported	2	-	-
	Single Multiple	8	-	-

^a 50 or 100 meter target ranges

^b 150 or 200 meter target ranges

^c 250 or 300 meter target ranges

In this phase, trainees complete a second, 40-round exercise, Record Fire II, firing at both single and multiple targets (See Table B-40). Prior to completing this exercise, trainees are allowed to fire another 10 practice rounds. To successfully complete this part of the evaluation, the trainees must achieve a minimum score of 23 (hits).

If a trainee fails to bring his total Record Fire score to 43 (20 hits in Record Fire I and 23 hits in Record Fire II), he completes remedial training. After this training, he refires Record Fire II. During the BRM Test, two refires were allowed, if after the second refire, he failed to achieve the minimum score of 43 hits, at the option of his commanding officer, the trainee was returned to an earlier point in BRM training or the minimum score requirement was waived. In the latter case, the trainee proceeded to the next phase of the program, Automatic Rifle Firing.

Automatic Rifle Firing. In this phase, which is conducted on a Night Fire range in this program, trainees are first given a demonstration of the fundamentals of automatic rifle marksmanship. Next, they review rapid magazine changing, the center-of-target engagement technique, the primary firing position, the bi-pod-supported prone position, area target engagement, and fire distribution. Following this instruction, a practical exercise is completed. This exercise consists of firing 36 rounds (in 3-round bursts) at 50-meter, I-type silhouette targets which appear for brief periods of time.

Night Rifle Firing. This phase begins with instruction

In the night-fire-aiming technique and the relationships of automatic and semi-automatic fire to night fire. Following this instruction, a practical exercise is conducted during which trainees fire two, 15-round magazines in two- to three-round bursts at the 50-meter, E-type silhouette targets from the bipod-prone supported position. A minimum of four hits are required for a "Go" (pass) status. Completion of this phase marks the end of the Fort Dix BRM program.

Training Objectives. Mellonics examined the lesson plans used to implement the Fort Dix BRM program. Each session's objectives were associated with one of the training phases described previously. Tables B-41 through B-44 report the results of that effort.

Program Training Practices. In this section, the training practices characteristic of this BRM program are presented and discussed. These were derived from an inspection of the documentation for this program, i.e., the program POI, its associated lesson plans, and information derived from interviews with personnel associated with the implementation of the program during the BRM Test.

Training Techniques. Lectures, demonstrations, and practical exercises were the primary means by which the Fort Dix program was implemented. The use of these techniques paralleled that of the ASERISC program.

Table B-41

TRAINING OBJECTIVE FOR THE ORIENTATION AND MECHANICAL TRAINING PHASE: FORT DIX BDM PROGRAM

Training Objective

Task:

The trainee will be taught the history of marksmanship and the development, capabilities, nomenclature, disassemble, assemble, cycle of functioning, stoppages, immediate action, necessary maintenance, loading and unloading and preliminary zero of the M16A1 rifle.

Condition:

This period will be conducted in a classroom.

Training Standard:

The trainee should be able to demonstrate the techniques and tasks specified above to the satisfaction of the instructors.

Table B-42

TRAINING OBJECTIVES FOR THE PREPARATORY MARKSMANSHIP PHASE - FORT DIX BRY PROGRAM

Training Objectives

Training Objective I

Task: To teach the trainee the fundamentals of basic rifle marksmanship to include the integrated act of firing, the sight picture, sight alignment, followthrough, placement of the aiming point, focus of the eyes, sight steadyhold factors, and prone supported firing position.

Condition: The introduction will be conducted in and adjacent to a classroom.

Training Standard: The trainee will be required to properly perform the transposition exercise

Training Objective II

Task: To teach the soldier basic rifle marksmanship with emphasis on fundamentals, to include the integrated act of shooting, correct sighting techniques and trigger control, and to apply the safety requirements for live fire exercises.

Condition: Not stated.

Training Standard: Not stated.

Training Objective III

Task: To teach the soldier how to make sight changes, how to use shot group analysis cards and understand the principles of battlesight zero well enough to determine the battlesight zero for his weapon.

Condition: Not stated.

Training Standard: Not stated.

(continued)

Table B-42 (concluded)

Training Objective IV

Task: To review the integrated act of shooting, sighting techniques, shot group analysis, the eight steady-hold factors, the prone supported position, and sight adjustment well enough to understand and determine a battlesight zero for the M16A1 rifle.

Condition: Not stated.

Training Standard: Not stated.

Training Objective V

Task: To familiarize the student with the procedures for effectively locating battlefield targets to include scanning the target area, target indicators, and range estimation.

Condition: Not stated.

Training Standard: Not stated.

Table 8-43

TRAINING OBJECTIVES FOR THE RECORD FIRE PREPARATION PHASE: PORT DIX BEN PROGRAM

Training Objectives	
Training Objective I	
Task:	To give you practice in engaging known distance targets, utilizing the center-of-target as point of aim, firing from the prone unsupported position.
Condition:	Not stated.
Training Standard:	Not stated.
Training Objective II	
Task:	To teach the trainee to engage field targets at various ranges from the kneeling supported, kneeling unsupported, foxhole, and standing firing positions using the center-of-target technique of aiming.
Condition:	Not stated.
Training Standard:	Not stated.

Table B-34

TRAINING OBJECTIVE FOR THE AUTOMATIC RIFLE FIRING AND NIGHT RIFLE FIRING PHASE: PORT SIX SIX PROGRAM

Training Objective	
Task:	To familiarize the soldier with the skills of firing the M16A1 rifle in the automatic mode during hours of limited visibility and during hours of darkness.
Condition:	Not stated.
Training Standard:	Not stated.

Training Devices. The Shot Count Analyzer Card, was the primary diagnostic aid used by instructors conducting the Fort Dix BRM program. The M15 Training Device was used to assist trainees in learning how to obtain a proper sight picture. This device was also used to show trainees how to place their aiming point.

Training References. Table B-45 shows the instructional references used to support the Fort Dix BRM program. Like the ASUBJSCD program, it reflects use of one primary information source, FM 23-9.

THE FORT JACKSON BRM PROGRAM

Description of Program Training and Evaluation Activities.

Program Organization. The Fort Jackson BRM program is divided into ten periods: seven involving only training activities, two involving only evaluation activities, and one involving both training and evaluation activities (See Table B-46). The implementation of the total program requires 62 hours and 501 rounds of ammunition. Functionally, this program is structured into nine phases which are listed below:

- o Orientation and Mechanical Training
- o Preparatory Marksmanship
- o Record Fire Preparation I
- o Day Record Fire I
- o Record Fire Preparation II
- o Day Record Fire II
- o Night Rifle Firing
- o Night Record Fire
- o Automatic Rifle Firing

Table B-45

REFERENCES USED DURING THE CONDUCT OF THE FORT DIX BRY PROGRAM

Period	Period Title	References
1	Preparatory Rifle Instruction (Mechanical Training)	FM 23-9, Chapter 2, Paragraphs 2-1 through 2-23
2	Preparatory Rifle Instruction (Fundamentals)	FM 23-9, Chapter 3, Paragraphs 3-2 through 3-6 and Chapter 4, Paragraph 4-2
3	Introduction to the Twenty-five Meter Range	FM 23-9, Chapter 3, Paragraphs 3-2 through 3-6
4	Twenty-five Meter Firing (1)	FM 23-9, Chapter 4
5	Twenty-five Meter Firing (2)	FM 23-9, Chapter 3, Paragraphs 3-3 through 3-6 and Paragraph 3-8; Chapter 4
6	Known Distance Firing	FM 23-9, Chapter 3, Paragraphs 3-3 through 3-8
7	Field Firing	FM 23-9, Chapter 5, Paragraphs 5-2 through 5-9
8	Record Fire I	FM 23-9, Chapter 2, Paragraphs 2-1 through 2-23; Chapter 3, Paragraphs 3-2 through 3-8; Chapter 4; Chapter 5, Paragraphs 5-2 through 5-9
9	Record Fire II	FM 23-9, Chapter 2, Paragraphs 2-1 through 2-23; Chapter 3, Paragraphs 3-2 through 3-8; Chapter 4; Chapter 5, Paragraphs 5-2 through 5-9
10	Automatic Rifle Firing and Night Rifle Firing	FM 23-9, Chapter 7, Paragraphs 7-4 through 7-6 and Paragraph 7-9

Department of the Army. Field Manual 23-9, M16A1 Rifle and Rifle Marksmanship.
Washington, DC: Author, 1974.

Table B-46

PERIODS DEFINING AND DISTRIBUTION OF PROGRAM HOURS AND ROUNDS OF AMMUNITION
ACROSS PERIODS: FORT JACKSON BRM PROGRAM

Period	Period Title	Program Hours	Rounds of Ammunition
1	Orientation and Mechanical Training	4	0
2	Introduction to Marksmanship	9	12
3	Preparatory Marksmanship Training	8	33
4	Introduction to Field Firing	8	72
5	Field Firing	8	72
6	Record Fire I	5	40
7	Field Fire (Move Out)	8	58
8	Record Fire II	5	40
9	Night Fire Training	5	132
10	Automatic Rifle Field Firing	3	42
		62 Hours	501 Rounds

* In the BRM Test Plan, it was reported that the total number of rounds of live ammunition allocated to this program was 513 rounds. During the completion of the work on which this paper is based, it was found that the rounds allocated for the Period 7 firings were 12 more than actually required by the Period 7 firing exercise. For this reason, the rounds shown allocated for Period 7 were reduced by 12 to 58 rounds and the program total was reduced from 513 to 501 rounds.

Table B-47 presents the periods of instruction included in each phase and the distribution of hours and rounds of ammunition across each of the phases. The table shows that the majority of hours and rounds are expended during the preparatory marksmanship, Record fire preparation, and the Record Fire phases. These phases emphasize the proper handling and accurate firing of the M16A1 rifle.

Like the other BRM programs, this program's phases are sequentially implemented. Orientation and Mechanical training, and preparatory marksmanship training are requisite to Record Fire Preparation I training and the Record Fire I evaluation. Completion of these phases is required before Record Fire Preparation II training and the Record Fire II evaluation are completed. Night Rifle Firing training is completed before Automatic Fire training.

Orientation and Mechanical Training. This training phase is conducted in a classroom. It begins with instruction in the history of rifle marksmanship in which trainees are introduced to the rifle's developmental history and to the rifleman's role in combat. Next, the trainees receive a demonstration and practical exercise on clearing the rifle. This exercise is followed by a presentation of the rifle's nomenclature. Instruction in principles of immediate action follows. Trainees are then taught how to disassemble and assemble the M16A1. Afterwards, they are shown how to handle stoppages. Next, instruction is presented on the care, cleaning, and lubrication of the rifle. This is followed by instruction on the loading and unloading of the rifle.

Table E-2

PROGRAM PERIODS INCLUDED IN AND DISTRIBUTION OF HOURS AND ROUNDS ACROSS
THE TRAINING AND EVALUATION PHASES DEFINING THE FORT JACKSON BRM PROGRAM.

Phase	Periods Included In Phase	Hours Allocated To Phase	Rounds Allocated To Phase
Training			
Orientation and Mechanical Training	1	4	0
Preparatory Marksmanship	2,3	16	45
Record Fire Preparation I	4,5,	16	144
Record Fire Preparation II	7	8	58
Night Rifle Firing	9a	2	66
Automatic Rifle Firing	10	3	42
Total Training	7.4 Periods	49 Hours	350 Rounds
Evaluation			
Day Record Fire I	6	5	40
Day Record Fire II	8	5	40
Night Record Fire	9	3	66
Total Evaluation	2.6 Periods	13 Hours	146 Rounds
Total Program	10 Periods	62 Hours	501 Rounds

Forty percent of Period 9 is allocated to the conduct of Night Rifle Firing instruction and practice, while 60 percent of this period is allocated to the Night Record Fire evaluation.

Finally, a conference on hearing observation occurs. Success in this phase is measured in terms of how well the tasks are completed during practical exercises, with the most importance being placed on learning, disassembly, and assembly of the rifle.

Preparation of Marksmanship. This phase consists of instruction and practice activities designed to teach the trainee how to aim and hold the rifle; how to assume a firing position; how to squeeze the trigger; how to followthrough; and how to adjust the sights. Table 5-47 shows the periods included in this phase, the hours allocated for the phase and the rounds of ammunition fired during the phase. All of the instruction and practice completed during the phase is implemented at a 25-meter range facility. This phase is successfully completed once the trainee battlesight zeroes his weapon.

Introduction to Marksmanship. Initially, during this session, the trainees receive an explanation and demonstration on the effects of aiming the M16A1. Next, the trainees are briefed on the principles of sight alignment and the techniques involved in aiming point placement. Also, the trainees are introduced to shot group analysis with specific reference to the principles of sighting and aiming point placement. Following this instruction, the trainees are shown how to use the M15, M16, and Paige sighting devices. Practical work with the Paige and M16 devices and the Transposition Exercise comes next. Afterwards, trainees are shown how to assume the prone supported position. Trigger squeeze is practiced using the "Washer & Dime" exercise.

Preparatory Marksmanship Training. Trainee attainment of battlesight zero is the primary objective of this training session. It begins with a review of the prone supported position, the procedure for immediate action, aiming techniques, sight adjustment, and the effects of sight adjustment. Next, the principles of battlesight zero are introduced and explained. Trainees then complete the "Ball and Dummy" exercise, which is designed to detect errors in trigger control. Finally, battlesight zero is established by firing 33 rounds in ten, three-round shot groups from the prone supported position. Trainees also practice assuming the prone supported position and complete the Transposition Exercise. Aiming is practiced using the M16 and Paige sighting devices. Trigger squeeze is also practiced using the "Washer & Dime" exercise.

Record Fire Preparation I. This phase includes two, eight-hour sessions (See Table B-47). Both are conducted on a Field Fire range. However, completion of the first session, additionally requires the use of a Twenty-five Meter range.

Introduction to Field Firing. This session commences with a discussion of the center-of-target method of engagement and the effects of wind on firing. This instruction is followed by a 72-round live-fire practical exercise involving the engagement of single targets. The exercise is fired from only the foxhole and prone unsupported positions and is completed in two separate phases. Table B-48 shows the distribution of firings by field fire

Table B-48

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING PHASE, FIRING POSITION, AND TARGET
 RANGE: INTRODUCTION TO FIELD FIRING, FORT JACKSON BRM PROGRAM

Firing Phase	Firing Position	Target Range (Meters)		
		75	175	300
I	Foxhole	10	6	2
	Prone Unsupported	6	6	6
II	Foxhole	7	8	3
	Prone Unsupported	8	8	2

phase, firing position and target range. Trainees complete corrective firing as required. The purpose of corrective firing is to make any sight adjustments necessary for attaining battlesight zero. Trainees also receive instruction in target detection techniques and in the methods of locating and marking single and multiple targets. Next, the principles for conducting target engagements in combat are discussed. If time permits, the trainees review and practice assuming the prone supported, the prone unsupported, and the foxhole firing positions. Also, they complete the Transposition exercise and use the M16 and Paige sighting devices to practice aiming. The "Washer & Dime" exercise is used to practice trigger squeeze.

Field Firing. The primary purpose of this phase is to teach the trainees to engage multiple targets and to prepare them for the Day Record Fire I evaluation, which immediately follows completion of this phase. This training begins with a review of the fundamentals of aiming, the center-of-target method of engagement, and the fundamentals of firing on multiple targets. Next, trainees complete a two part live-fire practical exercise. During each part of the exercise, 36 rounds are fired from the foxhole and prone unsupported positions at mainly multiple targets. Table B-49 presents the distribution of the firings by firing phase, firing position, target type, and target range.

Day Record Fire I Evaluation. The purpose of this exercise is to evaluate the ability of the trainee to engage combat-like targets. This is the first of three Record Fire evaluations

Table B-49

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING PHASE, FIRING POSITION,
TARGET TYPE, AND TARGET RANGE: FIELD FIRING, FORT JACKSON BRM PROGRAM

Firing Phase	Firing Position	Target	Target Range (Meters)		
			75	175	300
I	Foxhole	Single	-	1	-
		Multiple	6	7	4
	Prone Unsupported	Single	-	-	-
		Multiple	9	5	4
II	Foxhole	Single	-	-	-
		Multiple	6	7	5
	Prone Unsupported	Single	-	1	-
		Multiple	4	7	6

in this program. This phase, conducted on a Record Fire range, is initiated with a briefing on the conduct of Daylight Record Firing. Next, the principles of detecting and engaging single and multiple combat targets in their natural surroundings are reviewed. Following this review, the Record Fire I exercise is completed. For this exercise, trainees fire 40 rounds from the foxhole and prone unsupported positions at single and multiple targets (see Table B-50). Successful completion of this evaluation is based on attainment of 20 or more hits.

Training completed concurrently with this evaluation is remedial in nature, i.e., trainees receive instruction in areas of identified need. Previously introduced BRM fundamentals are reviewed or practiced. Moreover, if a trainee fails to achieve the 20 hit minimum, he refires the Record Fire exercise. During the BRM Test, refires were limited to two per trainee. If the second refire was not successfully completed, at the discretion of the commanding officer, the trainee was recycled to an earlier point in the program, or the minimum requirement was waived. In the latter case, the trainee proceeded to the next program phase.

Record Fire Preparation II. This two part training phase is conducted on a Field Fire range. During the first part, techniques of moving with a loaded weapon and rapid reloading are covered. Next, the trainees practice assuming the standing, kneeling unsupported, and prone unsupported positions. The movement to successive firing positions and the assumption of selected firing positions is then practiced,

Cable B-50

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING POSITION,
TARGET TYPE, AND TARGET RANGE: DAY RECORD FIRES I AND II, FORT JACKSON BRM PROGRAM

Firing Position	Target Type	Target Range		
		Short ^a	Medium ^b	Long ^c
Record Fire I	Foxhole	3	5	3
		4	2	3
Prone Unsupported	Single Multiple	4	4	2
		3	3	2
Record Fire II	Foxhole	-	1	2
		2	3	2
Prone Unsupported	Single Multiple	-	-	2
		4	8	6
Kneeling Unsupported	Single Multiple	1	1	-
		4	4	-

^a 50, 75, or 100 meter target range

^b 125, 150, or 200 meter target range

^c 250 or 300 meter target range

Next, the trainees fire 58 rounds (in two phases) from the foxhole, prone unsupported, and kneeling supported positions. The rounds are fired at single and multiple targets as shown in Table B-51.

Finally, trainees who did not complete target detection training during the Record Fire Preparation I phase, complete this training during the present phase.

Day Record Fire II Evaluation. In this evaluation, the trainees fire 40 rounds at single and multiple targets. Table B-50 shows the distribution of rounds fired by firing position, target type, and target range. To successfully complete this exercise, trainees must obtain a minimum of 27 hits. Also, during this phase, BRM-related subjects are reviewed and, as appropriate, remedial training occurs. Trainees failing to attain the minimum score of 27 (hits) receive remedial training. Afterwards, they refire the Record Fire II evaluation, at least two times. As was true for the Record Fire I evaluation, the Record Fire II evaluation was refired, at most, twice during the BRM Test. If the minimum number of hits required to complete the exercise is achieved during refiring, the trainees go on to Night Rifle Firing training. If they do not, upon the discretion of the commanding officer, they are recycled to an earlier point in the training program, or the minimum requirement is waived.

Night Rifle Firing. This training phase is conducted on a

Table B-51

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING PHASE, FIRING POSITION, TARGET TYPE, AND TARGET RANGE: FIELD FIRE (MOVE OUT), FORT JACKSON BRM PROGRAM

Firing Phase	Firing Position	Target Type	Target Range (Meters)		
			75	175	300
I	Foxhole	Single	2	2	4
		Multiple	-	-	-
	Prone Unsupported	Single	2	0	10
		Multiple	-	-	-
II	Kneeling Supported	Single	4	4	-
		Multiple	-	-	-
	Kneeling Unsupported	Single	6	6	-
		Multiple	6	6	-

Night Fire range. Training begins with an explanation and demonstration of the night-fire-pointing technique. This instruction is completed during daylight hours. It is followed by a practice firing of the Night Record Fire exercise. This practice firing is also completed during daylight hours. The practice exercise (as shown in Table B-52) involves firing 66 rounds at 25-and 50-meter targets. Both the semiautomatic and automatic modes of fire are used during the completion of the exercise.

Night Record Fire Evaluation. This phase is initiated immediately following the completion of the previous phase. It begins with a review of the principles of night vision and the night-fire-pointing technique. After completing the review, trainees complete the Night Record Fire exercise summarized in Table B-52. Qualification occurs in this phase if the trainee achieves 7 or more hits. If he obtains fewer than 7 hits, then the Night Record Fire exercise is refired until the minimum number of requirements is waived by the local commander. Concurrent training in BRM-related subjects is also conducted on an as needed basis during this phase.

Automatic Rifle Firing. This training phase is the last conducted in the Fort Jackson program. It is implemented on a Modified Field Fire range. The phase begins with a briefing on the fundamentals of automatic rifle marksmanship, including rapid magazine changing, the center-of-target method of target engagement, and the primary firing position (bipod-prone supported position). Next, area target engagement and the technique of fire distribution are addressed.

Table B-52

DISTRIBUTION OF FIRINGS IN ROUNDS OF LIVE AMMUNITION BY FIRING PHASE, FIRING MODE, AND TARGET RANGE:
NIGHT RIFLE FIRING PRACTICE AND NIGHT RECORD FIRE
EVALUATION, FORT JACKSON BRM PROGRAM

Firing Phase	Firing Mode	Target Range (Meters)	Number of Rounds Fired
Night Rifle Firing Practice			
1	Semiautomatic	25	1, 3-round burst
2	Automatic	25	10, 3-round bursts
3	Semiautomatic	50	1, 3-round burst
4	Automatic	50	10, 3-round bursts
Night Record Fire Evaluation			
1	Semiautomatic	25	1, 3-round burst
2	Automatic	25	10, 3-round bursts
3	Semiautomatic	50	1, 3-round burst
4	Automatic	50	10, 3-round bursts

Following this instruction, techniques for engaging automatic Field Fire targets are introduced and explained. Finally, a 42-round live-fire practical exercise is conducted. This exercise involves firing 12 rounds from the bipod-prone supported position at 25-meter targets and 30 rounds in the same position at 75-meter targets. These are fired in 3-round bursts. Participation in this exercise completes the Fort Jackson BRM program.

Training Objectives. A review of the documentation for the Fort Jackson program failed to yield the training objectives developed to support the program. This program, however, is a modification of the BRM program described in the ASUBJSCD 23-72. Therefore, it is reasonable to assume that the objectives for common training phases are essentially the same. Based on this assumption, training objectives for the Fort Jackson program were derived from an analysis of the objectives for the BRM program described in the ASUBJSCD 23-72. Tables B-53 through B-58 present the derived objectives on a program phase - by - phase basis.

Program Training Practices. The purpose of this section is to discuss the training practices supporting the implementation of the Fort Jackson BRM program. These were derived from an examination of the available documentation for this BRM program, i.e., the program POI and information derived from interviews with program personnel at Fort Jackson, South Carolina.

Training Techniques. Demonstrations, lectures, and

Table 9-53

TRAINING OBJECTIVES FOR THE ORIENTATION AND MECHANICAL PHASE: FORT JACKSON BRYM PROGRAM

Training Objective

Task: Disassemble and assemble the M16A1 rifle.

Condition: Not stated.

Training Standard: Correctly disassemble and assemble the M16A1 rifle within three minutes.

Intermediate Training Objectives

Intermediate Training Objective I

Task: Know the maximum effective range, the cyclic rate of fire, the sustained rate of fire, the weight, and the types of ammunition for the M16A1 rifle.

Condition: Not stated.

Training Standard: Correctly state the maximum effective range, the cyclic rate of fire, the sustained rate of fire, the weight, and the type of ammunition for the M16A1 rifle.

Intermediate Training Objective II

Task: Identify all parts of the M16A1 rifle.

Condition: Not stated.

Training Standard: Correctly identify all of the parts of the M16A1 rifle.

Intermediate Training Objective III

Task: Explain the cycle of functioning of the M16A1 rifle.
(continued)

Table B-53 (concluded)

Condition:	Not stated.
Training Standard:	Correctly explain the cycle of functioning of the M16A1 rifle.
Intermediate Training Objective IV	
Task:	Perform the immediate action procedure for the M16A1 rifle.
Condition:	Not stated.
Training Standard:	Correctly perform the immediate action procedure for the M16A1 rifle.
Intermediate Training Objective V	
Task:	Clean and lubricate the M16A1 rifle.
Condition:	Not stated.
Training Standard:	Correctly clean and lubricate the M16A1 rifle.

Table B-54

TRAINING OBJECTIVES FOR THE PREPARATION: MARKSMANSHIP PHASE: FORT JACKSON BRM PROGRAM

Training Objective

Task: Adjust the M16A1 rifle sights in order to move the strike of the M16A1 round to a desired point on a 25-meter target.

Condition: Not stated.

Training Standard: Correctly adjust the sights of the M16A1 rifle so that the strike of the M16A1 round is moved to a desired point on a 25-meter target.

Intermediate Training Objectives

Intermediate Training Objective I

Task: Perform all actions required for the safe conduct of a live-fire exercise.

Condition: Not stated.

Training Standard: Correctly perform all actions for the safe conduct of a live-fire exercise IAW AR 385-63 and local safety regulations.

Intermediate Training Objective II

Task: Obtain a good sight picture and apply the steady-hold factors while assuming the prone supported firing position.

Condition: Not stated.

Training Standard: Correctly align the M16A1 sights with a target to obtain a good sight picture and properly apply the steady-hold factors while assuming the prone supported firing position.

Intermediate Training Objective III

Task: Apply the proper sighting techniques and use the steady-hold factors while firing from the prone supported firing position.

(continued)

Table B-54 (continued)

Patient	Not stated
Training Standard:	Correctly apply the proper sighting techniques and correctly utilized the steady-hold factors while firing from the prone supported firing position.

Table B-55

TRAINING OBJECTIVES FOR THE RECORD FIRE PREPARATION I PHASE: FORT JACKSON BRM PROGRAM

Training Objective I

Task: Apply the integrated act of shooting to engage field targets at various ranges from the prone unsupported, prone supported, and foxhole firing positions.

Conditions: Not stated.

Training Standard: Correctly apply the integrated act of shooting to engage field targets at various ranges from the prone unsupported, prone supported, and foxhole firing positions.

Training Objective II

Task: Locate, mark, and determine the range to single stationary targets.

Conditions: Not stated.

Training Standard: Accurately locate, mark, and determine the range to single, stationary targets.

Training Objective III

Task: Use the center-of-target aiming technique to engage field targets at all ranges.

Conditions: Not stated.

Training Standard: Correctly apply the center-of-target aiming technique to engage field targets at all ranges.

Table H-56

TRAINING OBJECTIVES FOR THE RECORD FIRE PREPARATION II PHASE: FORT JACKSON BFM PROGRAM

Training Objective I

Task: Apply the integrated act of shooting to engage field targets at various ranges from the prone unsupported, knee supported, kneeling unsupported, and standing firing positions.

Conditions: Not stated.

Training Standard: Correctly apply the integrated act of shooting to engage field targets at various ranges from the prone unsupported kneeling supported, kneeling unsupported, and standing firing positions.

Training Objective II

Task: While advancing assume designated and undesignated firing positions to engage surprise targets.

Conditions: Not stated.

Training Standard: Correctly assume designated and undesignated firing positions while advancing and engage surprise targets.

Table 8-57

TRAINING OBJECTIVES FOR THE AUTOMATIC RIFLE FIRING PHASE: PORT JACKSON BRM PROGRAM

Training Objective

Task: Engage targets with automatic fire from the bipod-supported prone firing position.

Conditions: Not stated.

Training Standard: Correctly apply the fundamentals of automatic rifle marksmanship to engage targets with automatic fire from the bipod-supported prone firing position.

Intermediate Training Objective

Task: Know the fundamentals of rapid magazine changing, three-round bursts, center-of-target engagement method, primary firing positions, area target engagement, and fire distribution.

Conditions: Not stated.

Training Standard: Correctly apply the fundamentals of magazine changing, three-round bursts, center-of-target engagement method, primary firing positions, area target engagement and fire distribution.

Table B-58

TRAINING OBJECTIVES FOR THE NIGHT RIFLE FIRING PHASE: PORT JACKSON BRM PROGRAM

Training Objective

Task: Employ night fire technique to engage targets at ranges of 25 and 50 meters.

Conditions: Not stated.

Training Standard: Correctly employ night fire technique to effectively engage targets at ranges of 25 and 50 meters.

Intermediate Training Objective

Intermediate Training Objective I

Task:

Apply the night fire pointing technique during daylight (as applicable to night firing) from the bipod-supported prone position utilizing automatic fire.

Conditions: Not stated.

Training Standard:

Correctly apply the night fire pointing technique during daylight (as applicable to night firing) from the bipod-supported prone position utilizing automatic fire.

Intermediate Training Objective II

Task:

Apply the principles of night vision in conjunction with the night fire pointing technique to engage targets at night.

Conditions: Not stated.

Training Standard:

Correctly apply the principles of night vision in conjunction with the night fire pointing technique to engage targets at night.

practical exercises, as in the other three programs, were the methods used to support the conduct of the Fort Jackson BRM program. In general, the frequency of their use closely approximated the frequency of use in the ASUBJSCD program.

Training Devices. The Shot Group Analysis Card was the primary diagnostic device used by Fort Jackson program personnel. As discussed previously, this card lists reasons for unsatisfactory shot groups. Additionally, the M15, M16, and Paige Sighting Devices were used to teach proper sight alignment and aiming point placement.

Training Exercises. The training exercises used in the conduct of the Fort Jackson's BRM program include live-fire exercises, the Transposition Exercise, and the "Ball and Dummy" exercise. As above, the frequency of their use closely approximates that of the ASUBJSCD program. In addition this program also employs the "Washer & Dime" exercise for practicing trigger pull technique. This exercise is conducted in the following way:

The "Washer & Dime" exercise also provides corrective guidance to trainees who jerk the trigger during firing because of improper breathing or muscular tension. During the conduct of this exercise, the trainee is told to assume a designated firing position. Next, the instructor places a large washer on the front of the rifle barrel so that when the

trainee sights with the weapon, the end of the barrel is obscured. On the obscured end of the barrel, a dime-sized disk is placed. The trainee then dry-fires the weapon. If he is in a relaxed position and breathing properly, the disk will remain in position on the obscured end of the barrel. If not, the disk will be dislodged and fall to the ground.

By repeating this exercise a number of times, the trainee can attempt to improve his firing technique by assuming a more relaxed position and reducing muscular tension during firing. Success or failure in accomplishing these goals is readily apparent each time the exercise is completed. If dry-firing is completed correctly, the disk remains on the rifle barrel; otherwise, it falls.

Training References. Table B-59 shows the instructional references used in the implementation of the Fort Jackson program. The primary reference was FM 23-9.

Table 8-59

REFERENCES USED DURING THE CONDUCT OF THE FORT JACKSON BEM PROGRAM

Period	Period Title	References
1	Orientation and Mechanical Training	FM 23-9, Chapter 2
2	Introduction to Marksmanship	FM 23-9, Chapters 3 and 4
3	Preparatory Marksmanship Training	FM 23-9, Chapters 3 and 4
4	Introduction to Field Firing	FM 23-9, Chapters 3, 4, 6, and Appendix D
5	Field Firing	FM 23-9, Chapters 3, 4, 6, and Appendix D
6	Record Fire I	FM 23-9, Chapters 2, 3, 4, 6, and Appendix D
7	Field Fire (Move Out)	FM 23-9, Chapters 5, 6, and Appendix D
8	Record Fire II	FM 23-9, Chapter 2 through 6 and Appendix D
9	Night Fire Training	FM 23-9, Paragraphs 9-6 through 9-13; FM 21-75, Chapter 2, Section 5
10	Automatic Rifle Field Firing	FM 23-9, Chapter 7

^a Department of the Army. Field Manual 23-9, M16A1 Rifle and Rifle Marksmanship. Washington, DC: Author, 1974.

^b Department of the Army. Field Manual 21-75, Combat Training of the Individual Soldier and Patrolling. Washington, DC: Author, 1967.

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